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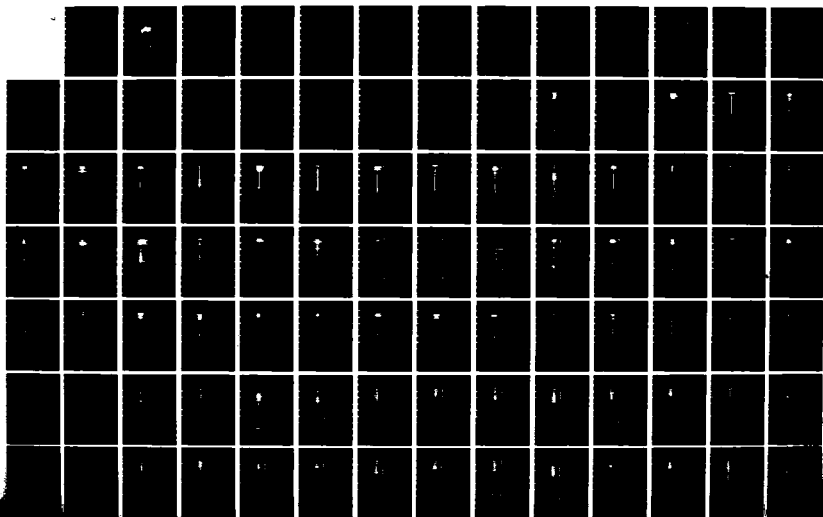
HAZP OBSERVATIONS DURING MILDEX OCTOBER-NOVEMBER 1983
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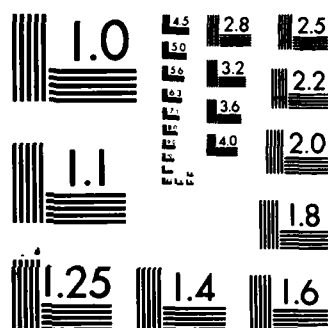
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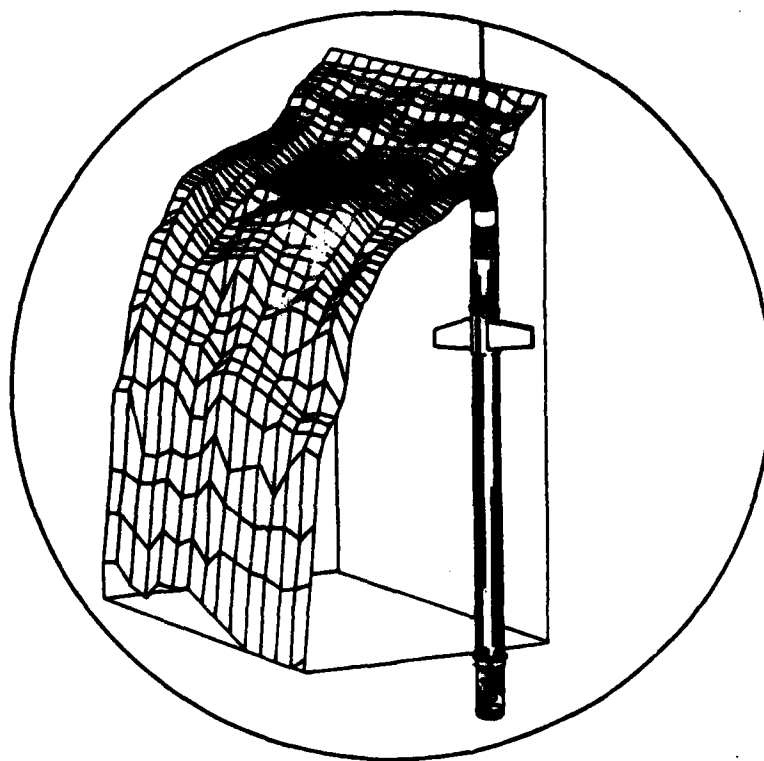
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OREGON STATE UNIVERSITY

WAZP Observations
during MILDEX
October-November 1983

by

Melora M. Park
Michael D. Brown
Thomas M. Dillon
Priscilla A. Newberger
Douglas R. Caldwell

Office of Naval Research
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College of Oceanography
Oregon State University

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October-November 1983

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Michael D. Brown
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Douglas R. Caldwell

College of Oceanography
Oregon State University
Corvallis OR 97331

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ACKNOWLEDGMENTS

The authors wish to thank S. Wilcox, who aided in some of the WAZP II electronics construction, and J. Cantey, K. Fischer, and H. Dannelongue, who helped acquire the data at sea. C. Paulson and R. Baumann provided the Seabird salinities and temperatures as well as some shipboard meteorological observations.

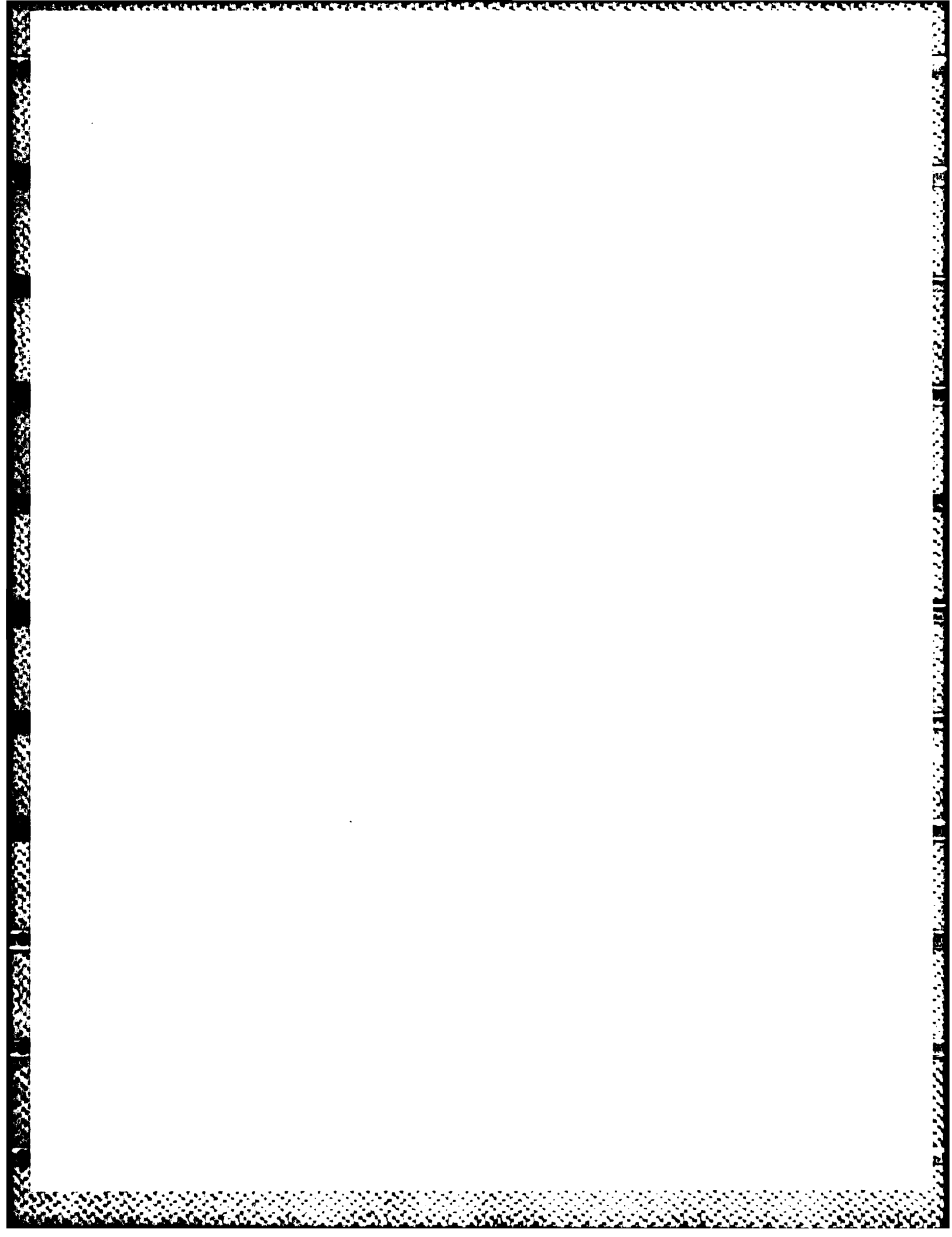


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THE MILDEX EXPERIMENT

MILDEX, a mixed layer dynamics experiment, began October 21, 1983 and lasted until November 16, 1983. R.P. Flip, R.V. Wecoma and R.V. Acania rendezvoused at 34° N, 127° W to participate in joint observations of the mixed layer and upper ocean. This report contains data from the Wave Zone Profiler, WAZP II, deployed from the R.V. Wecoma.

The WAZP II is a vertically rising microstructure profiler with sensors designed to obtain kinetic energy dissipation rates and microstructure information near the sea surface. WAZP II was deployed over block periods during the cruise beginning October 25 and ending November 12, GMT. Work was done in daylight with the ship moving at about 1/2 knot (just enough to maintain heading into the swell). Time between casts was approximately nine minutes, with each drop lasting roughly two minutes.

THE INSTRUMENT

The WAZP II microstructure probe is 1.7 m long and 5.7 cm in diameter. A nose cone contains 2 airfoil shear sensors (Undersea Technology Inc., Monterey, California), a fast thermistor (Thermometrics model FP07), a solid-state pressure sensor, and a conductivity sensor. Two WAZP II probes were used in MILDEX. Probe #6.83 was equipped with a Neil Brown conductivity sensor, and probe #7.83 had a Michael Head micro-conductivity sensor. The probe body is filled with mineral oil, and pressure is transmitted to the probe interior through a bladder. Inside the probe are batteries, pre-amplifiers, and associated circuitry. Signals are transmitted to a ship-board acquisition system through a data link consisting of 8 pairs of 32 gauge copper wire, a Kevlar core, and a polyurethane sheath. The data link also serves as a recovery line. Drag brushes are installed on the tail of WAZP II to maintain a steady vertical speed.

The WAZP II is operated in the rising mode by using toroidal foam buoyancy elements around the probe body. A ballast weight is attached to the recovery line, and the probe is allowed to descend to a chosen depth (usually less than 100 m). The ballast is then released, and the probe buoyantly ascends. The rise speed can be adjusted by changing the buoyancy. During MILDEX, a 55 cm/s rise

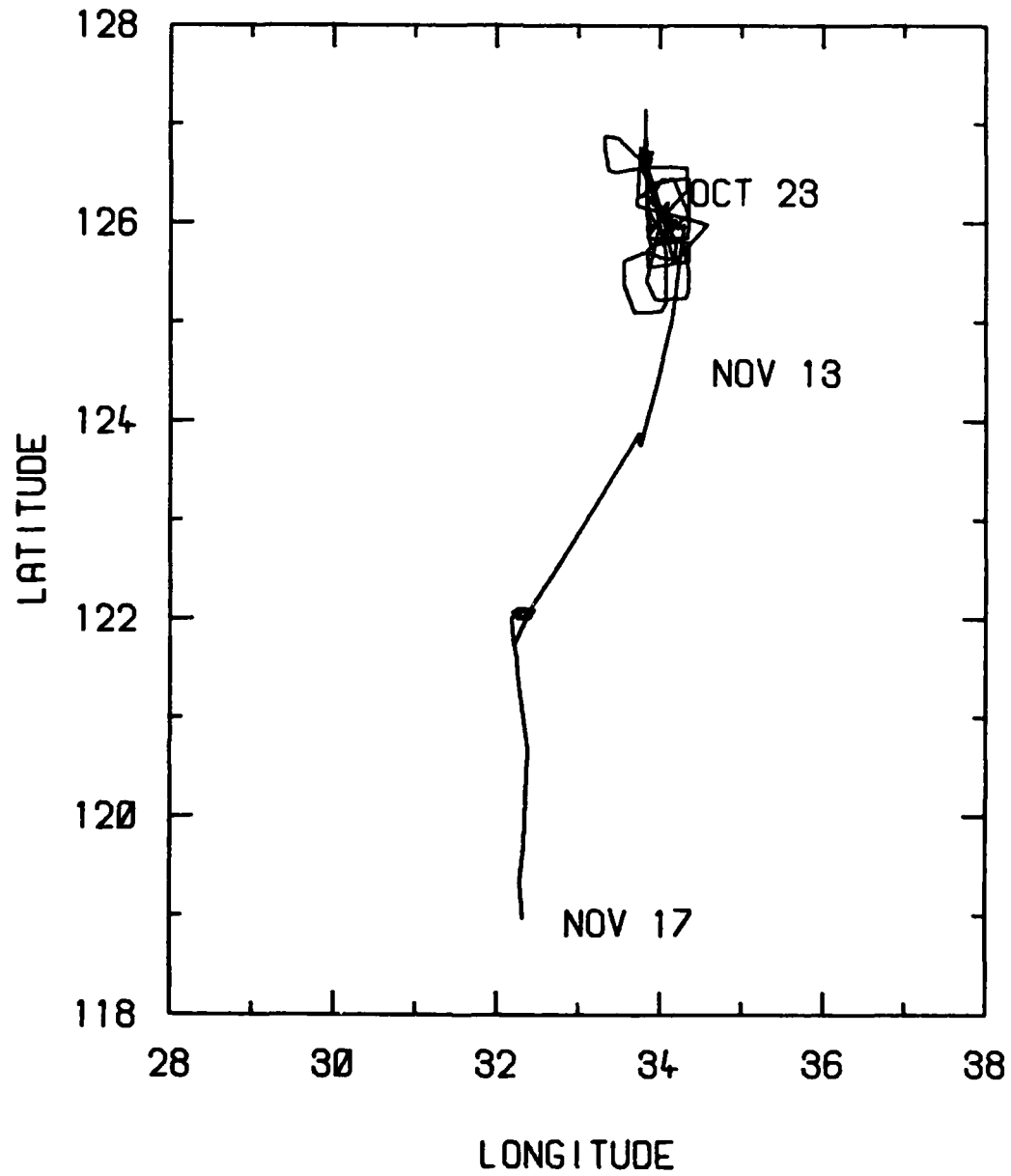
speed was used. The terminal velocity is reached a few meters above the release depth. Normally, the speed (as measured from the pressure) varies by ± 5 cm/s over most of the drop. Occasionally, the observed speed was as large as 65 cm/s in MILDEX. Within 1-2 meters of the surface, the speed usually fell to 40-50 cm/s, perhaps due to the wind-wave field, or possibly due to strong shears very near the surface.

On board ship, voltages were amplified, processed, digitized, and recorded on magnetic tape. Digitization was done with a 12-bit ADAC A/D converter controlled by an LSI 11/23 minicomputer. Voltages were digitized at 130 scans per second, each scan consisting of 16 words. In order to increase resolution near the surface, where gradients are small, temperature and conductivity were both independently amplified twice, using different gains and offsets. High gain temperature, low gain temperature, high gain conductivity, and low gain conductivity were filtered at 40 Hz with a 6-pole analog butterworth filter, and were recorded once each scan. Signals from the pressure pre-amplifier were filtered at 2 Hz, and were recorded once per scan. The two shear signals were amplified, differentiated, and filtered at 80 Hz with an elliptic filter. Each shear channel was recorded twice each scan, yielding an effective rate of 260 samples per second. Temperature and conductivity were also electronically differentiated before filtering. The temperature derivative was filtered at 45 Hz with an elliptic filter, and the conductivity derivative was filtered at 240 Hz with an elliptic filter. Temperature derivatives were digitized twice per scan, and the conductivity derivative was digitized 4 times per scan, giving an effective sampling rate of 520 samples per second.

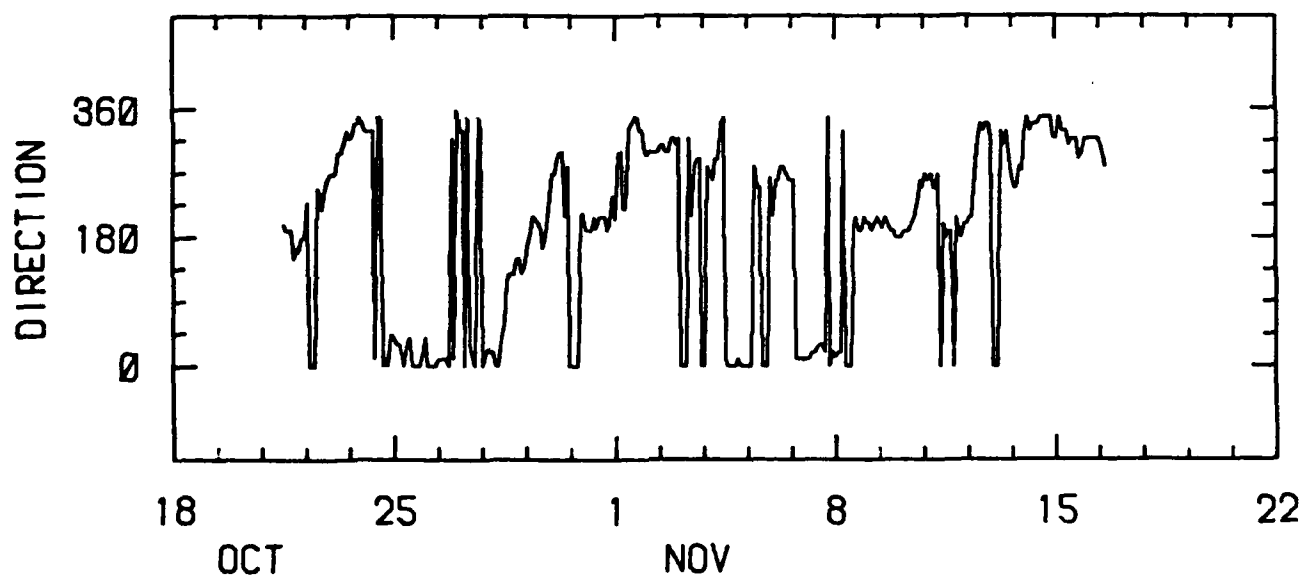
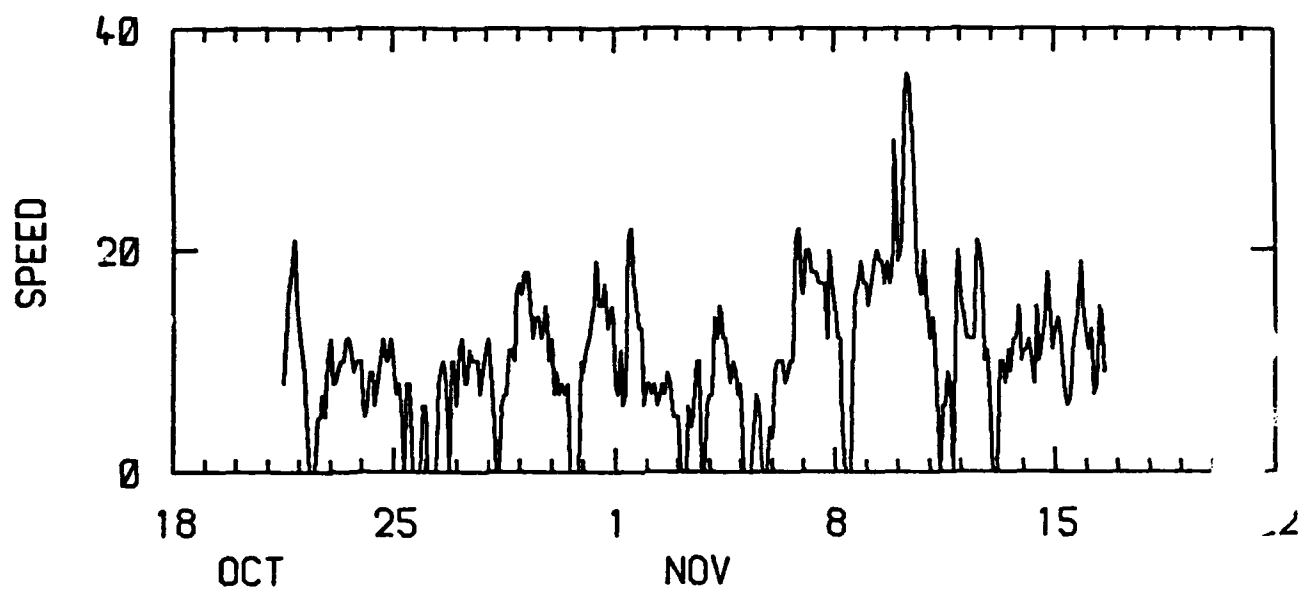
THE DATA

This report contains two types of plots. The first type shows low gain temperature, temperature derivative, and shear, as a function of depth, illustrating near surface activity and pinpointing periods of turbulent activity. The data for these plots were averaged over approximately 2 cm. The second type of plot is a profile of temperature, salinity and σ_T , with corresponding units of °C, parts per thousand, and σ_T units (data averaged over 20 cm). These plots are included for roughly every five drops per tape or at least one near the beginning and one near the end of each working period. Times and dates shown are GMT. Plots of meteorological data, ship position, and various sea surface parameters obtained from bridge observations are at the beginning of the report along with a detailed list of WAZP II drop information.

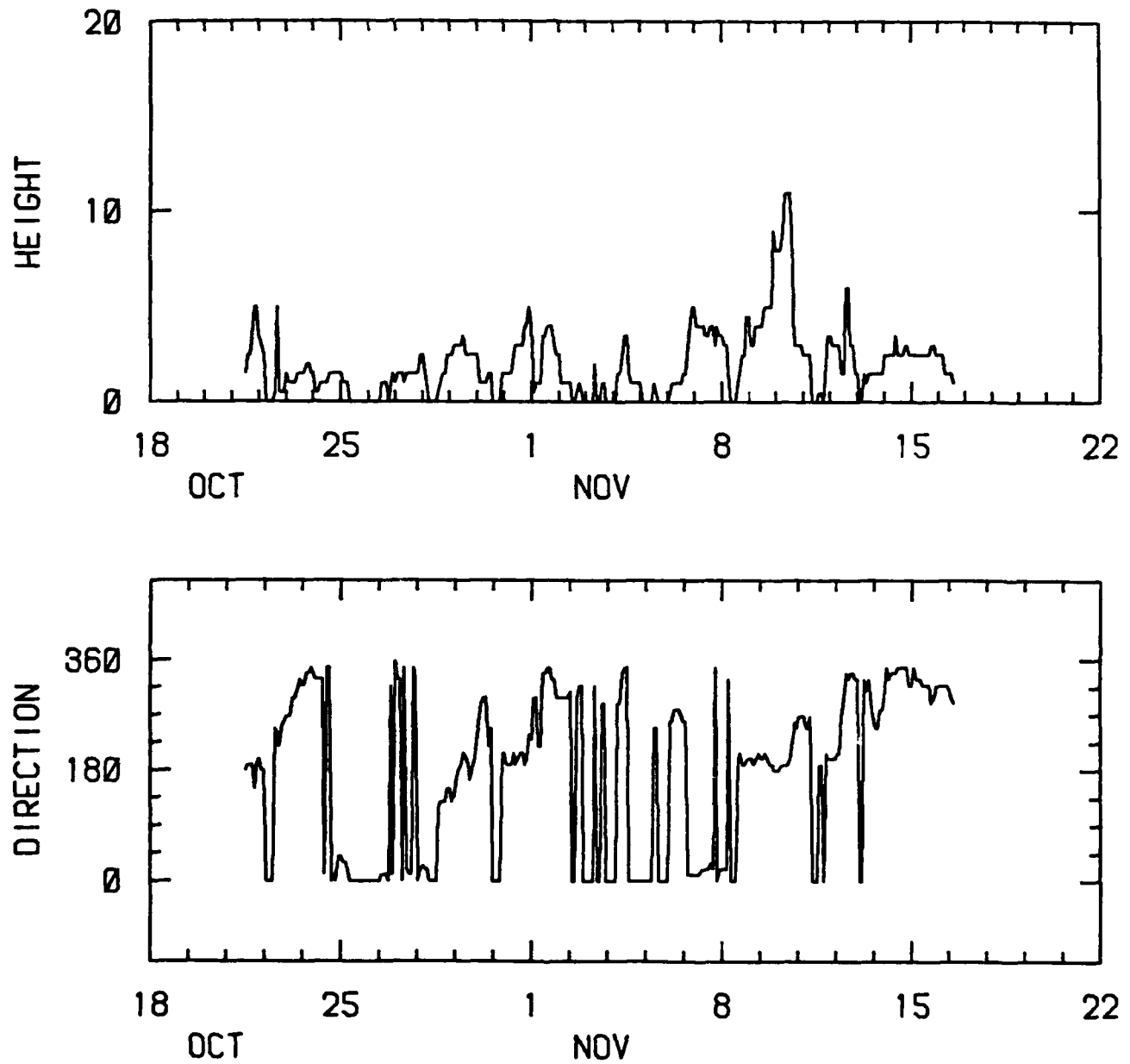
Conductivity comparisons from both units to a flow-through Seabird, and bottle salinity, indicated a marked shift in sensor calibrations, probably due to contamination of the conductivity sensors. Correction factors were applied to WAZP II conductivity in order to achieve agreement between WAZP II computed salinity and Seabird salinity. The WAZP II temperature measurements agreed well with Seabird temperatures, except the November 11 and 12 sampling periods, where an unknown discrepancy of 0.2 °C is apparent. This discrepancy has not yet been resolved, and it is not yet known which temperature is in error.



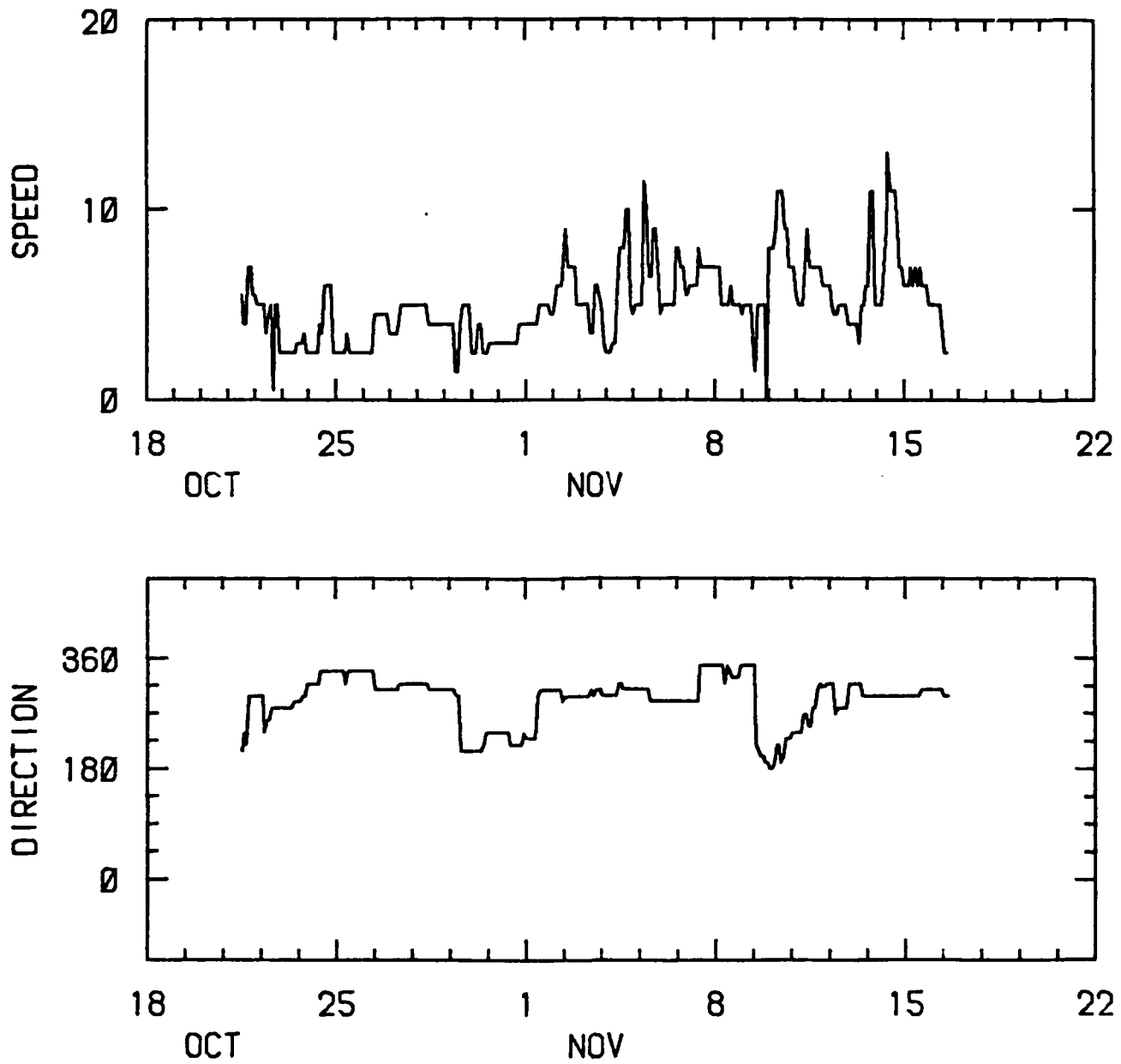
CRUISE TRACK RV WECOMA, MILDEX 1983



WIND SPEED (KNOTS) AND DIRECTION
BRIDGE OBSERVATIONS



SEA HEIGHT (FEET) AND DIRECTION
BRIDGE OBSERVATIONS



SWELL HEIGHT (FEET) AND DIRECTION
BRIDGE OBSERVATIONS

GMT DATE	INST	FORM #	LINE #	KNTS WIND	LONG	LAT	REL DEPTH	GMT TIME	TAPE	BATCH

10/25	6.83	1	801				60	17:00	13	1
				4			80	:09		2
				3			92	:20		3
				6			80	18:00		4
				1			96	:12		5
				6			39	:30		6
				4			36	:39		7
				7			42	19:35		8
				6			40	:47		9
				6			40	:55		10
				6			42	20:08		11

10/25	6.83	1	801	6	33	52.1'	126 42.6'	41	:23	14 1
				6		52.4'	42.6'	40	:29	2
				4		52.5'	42.8'	40	:39	3
				5		52.2'	43.0'	48	:50	4
				4		52.4'	42.8'	49	:58	5
				5		52.6'	42.6'	55	21:03	6
				3		.6'	43.0'	44	:15	7
				4		.8'	.3'	44	:25	8
				5		53.2'	.3'	40	23:43	9
				4		.3'	44.6'	40	00:00	10
				6		.4'	.6'	55	:02	11
				1		.4'	.9'	80	:16	12
						.4'	.9'	80	:25	13
				5				80	:37	14
				6		.4'	45.5'	60	:46	15

10/26	6.83	1	801	7		49.2'	36.9'	80	17:33	16 1
				8		.3'	.9'	73	:45	2
				6		.4'	.9'	41	:55	3
				7		.4'	.9'	42	18:00	4
				6		.5'	.9'	42	:07	5
				8		.6'	.9'	40	:13	6
				7		.6'	37.0'	43	:22	7
				6		.6'	36.9'	42	:28	8
				9		.6'	37.0'	41	:34	9
	7.83	2	801	7		50.0'	.4'	70	19:45	10
				7		.2'	.4'	70		11
				7		.3'	.6'	60	20:31	12
				6		.4'	.7'	51	:38	13
	6.83	1	806			.8'	.8'	40	21:30	14
				ABORT						15
				8		.8'	.9'	60	:45	16
				8		.8'	.9'	40	:55	17
				6		51.0'	38.0'	40	22:00	18
				7		.0'	.0'	40	:05	19
				6		.0'	.0'	40	:13	20

GMT DATE	INST	FORM #	LINE #	KNTS WIND	LONG	LAT	REL DEPTH	GMT TIME	TAPE	BATCH

10/26	6.83	1	806	7	.1'	.1'	38	:24	17	1
				6	.1'	.2'	40	:30		2
				8	.2'	.2'	53	:37		3
					.2'	.3'	40	:35		4
				6	.1'	.3'	40	:47		5
				6	.2'	.2'	40	:55		6
				7	.2'	.3'	40	23:00		7
				6	.2'	.2'	30	:09		8
				7	.3'	.3'	29	:17		9
				6	.3'	.4'	35	:21		10
	8.83	3	806		.3'	.5'	53	:51		11

10/29	7.83	2	806				60	18:11	30	1
				18	33 52.4'	126 20.9'	60	:36		2
				13	51.8'	.9'	70	19:00		3
				14	.7'	20.1'	60	:09		4
				13	.6'	.1'		:18		5
				13	.5'	.0'	60	:26		6
				12	.4'	19.8'	70	:34		7
							70	:41		8
				13	.3'	.6'	77	:49		9
				13	.2'	.4'	75	:56		10
				14	.1'	.4'	75	20:04		11
				12	.0'	.1'	75	:12		12

	7.83	2	806	13	50.8'	.0'	70	:23	31	1
				13	.7'	18.9'	60	:33		2
				12	.6'	.7'	60	:38		3
				12	.5'	.7'	65	:46		4
				12	.5'	.5'	75	:54		5
				11	.3'	.2'	65	21:06		6
				13	.2'	.0'	68	:15		7
				13	.1'	17.9'	65	:23		8
				14	.0'	.7'	70	:31		9
				11	.0'	.5'	65	:40		10
				13	49.7'	.4'	70	:48		11
				12	.6'	.2'	67	:56		12
				13	.5'	.0'	67	22:05		13
				13	.3'	16.9'	62	:13		14

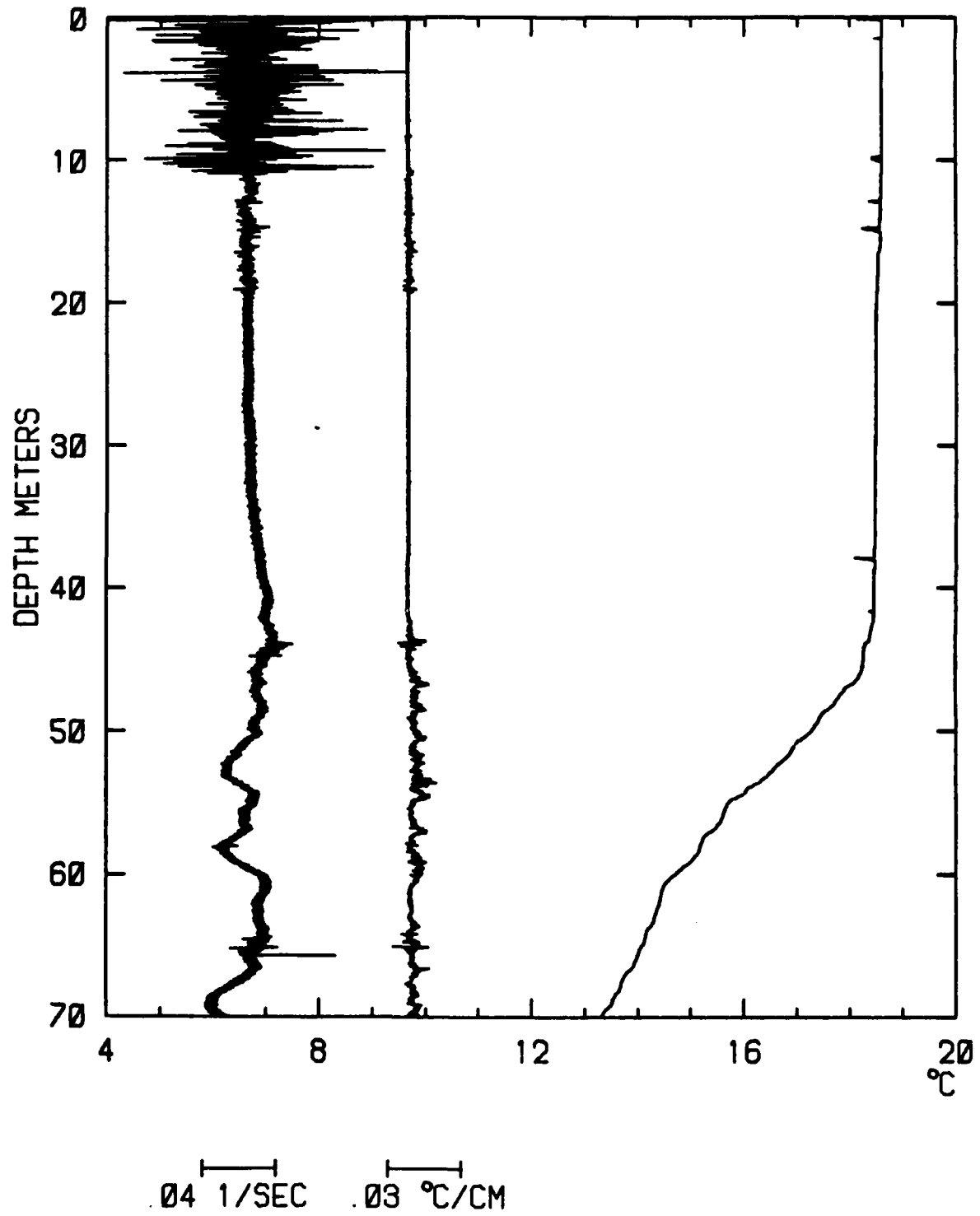
GMT DATE	INST	FORM #	LINE #	KNTS WIND	LONG	LAT	REL DEPTH	GMT TIME	TAPE	BATCH
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				11	.1'	.5'		:30		2
				11	48.9'	.4'		:38		3
				11	.7'	.3'	62	:48		4
				12	.7'	.0'	50	:55		5
				12	.5'	.2'	51	23:02		6
				10	.4'	.0'	50	:09		7
				10	.3'	15.9'	42	:19		8
				12	.2'	.8'	45	:24		9
				12	.0'	.7'	51	:32		10
				12	47.8'	.6'	45	:40		11
				10	.6'	.4'	42	:54		12
				10	45.5'	17.6'	48	00:22		13
				10	.3'	.7'	47	:29		14
				11	46.8'	15.2'	52	:36		15
				12	.6'	.1'	45	:42		16
				12	44.9'	17.5'	48	:49		17
	7.83	2	806	12	.7'	.4'	48	:57	33	1
				12	.5'	.6'	58	01:06		2
				13	.4'	.5'	50	:13		3
				12	.2'	.6'	61	:23		4
				15	.1'	.4'	50	:32		5
				14	.0'	.4'	48	:39		6
				13	43.8'	.6'	47	:46		7
				15	.8'	.5'	47	:52		8
				15	.7'	.5'	63	:58		9
				15	.5'	.5'	44	02:05		10
				14	.5'	.6'	47	:11		11
				14	.5'	.6'	47	:17		12
				15	.4'	.5'	48	:23		13
				14	.3'	.6'	46	:27		14
				15	.3'	.7'	48	:33		15
				16	.2'	.7'	48	:39		16
	6.83	4	806	13	44.5'	15.2'	70	03:03		17
					.4'	.3'	70	:04		18
					.3'	.3'		:21		19
10/30	6.83	4	806	3	54.2'	126 19.5'	75	17:49	34	1
					.1'	.6'	75	18:07		2
				5	.0'	.7'	108	:16		3
				6	.0'	.8'	75	:26		4
				6	53.9'	19.9'	75	:33		5
				7	.8'	20.0'	80	:49		6
							80	:		7
	7.83	5	806	7	.4'	19.8'	75	20:23		8
				10	51.9'	22.2'	76	:32		9
				10	.8'	.2'	81	:42		10

GMT DATE	INST	FORM #	LINE #	KNTS WIND	LONG	LAT	REL DEPTH	GMT TIME	TAPE	BATCH
10/30	7.83	5	806	6	.5'	.3'	82	21:10	35	11
				5	.5'	.4'	77	:18		12
				6	.3'	.4'	71	:35		13
11/3	6.83	4	802	1	34 01.8'	126 9.0'	60	18:24	50	1
				4	.8'	.2'	60	:38		2
				5	.9'	.4'	50	:46		3
				9	2.0'	.4'	50	:54		4
							50	19:02		5
				7	.2'	.4'	55	:10		6
				4	.4'	.6'	51	:18		7
				7	.5'	.8'	45	:27		8
				7	.8'	.8'	55	:35		9
				10	.8'	10.0'		:53		10
				12	1.8'	12.6'	55	20:33		11
				11	3.2'	10.2'	55	:43		12
				11	.2'	.3'	54	:50		13
11/4	6.83	4	83-3	10	34 2.8'	126 7.8'	90	18:46	51	1
				11	3.0'	.8'	40	:50		2
				11	.1'	8.0'	55	19:11		3
				8	.4'	.1'	55	:22		4
				6	.4'	.2'	50	:30		5
				10	4.3'	.7'	55	20:17		6
				10	.4'	.7'	55	:26		7
				10	.5'	.7'	55	:35		8
				10	.6'	.9'	55	:45		9
				7	.7'	.9'	55	:53		10
11/10	6.83	4	83-3	24	6.3'	2.8'	75	20:40	64	1
							60	:52		2
			804					21:45		3
				20			55	:57		4
				20	5.9'	2.2'	55	22:05		5
				18	.8'	.1'	58	:13		6
							60	:27		7
										8
				17	.4'	.2'	60	:46		9
				20	.4'	.2'		:54		10
				20	.5'	.1'	60	23:05		11
				12	.4'	.0'	40	:13		12
				14	.4'	.0'	55	:22		13
				18	.4'	1.9'	57	:28		14
				17	.4'	.7'	60	:43		15
				14	.3'	.8'	57	:50		16
				15	.2'	.9'	55	:58		17

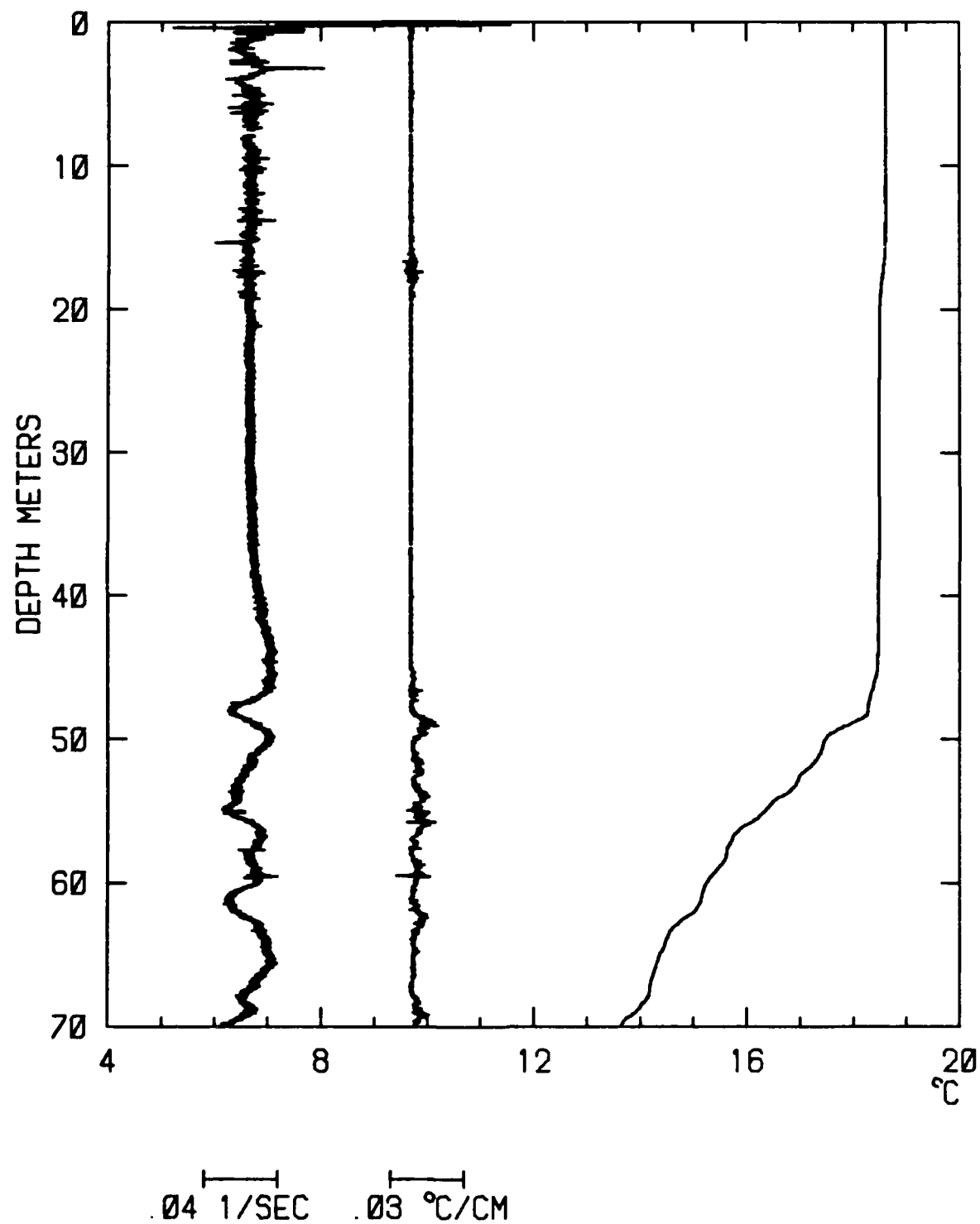
GMT DATE	INST	FORM #	LINE #	KNTS WIND	LONG	LAT	REL DEPTH	GMT TIME	TAPE	BATCH
11/11	6.83	4	804				77	00:10	65	1
				20	5.1'		1.8'	:20		2
							65	:32		3
							55	:42		4
							55	:51		5
							55	:58		6
							45	01:06		7
	7.83	5	804	18	4.8'		1.8'	:26		8
				17	.7'		2.0'	:35		9
				14	.7'		.0'	:43		10
				16	.6'		.1'	:50		11
11/12	6.83	4	804	12	33 44.7'	123	45.9'	60	16:53	67
				14	.5'		46.2'	65	17:01	2
				12	43.8'		.7'	66	:10	3
				13	44.7'		.0'	67	:19	4
				12	.7'		.0'	67	:29	5
				10	.6'		.0'	65	:36	6
				12	.6'		45.9'	67	:45	7
				10	43.7'		46.5'	85	:55	8
				10	44.5'		45.8'	80	18:05	9
				10	.5'		.9'	70	:14	10
	7.83	5	804	12	.4'		.9'	90	:41	11
				19	.2'		.8'	65	:52	12
				18	.3'		.8'	69	:59	13
				22	.3'		.9'	67	19:07	14
			83-10	20	.5'		46.0'	70	:34	15
				18	.5'		.2'	90	:45	16
				22	.5'		.3'	75	:57	17
				18	43.7'		47.1'	75	20:07	18
	7.83	5	83-10	20	.7'		.2'	75	:19	68
				ABORT						2
				21	44.6'		46.6'	96	:31	3
				20	.6'		.7'	71	:52	4
				20	.5'		.8'	68	21:05	5
				22	.5'		.9'	96	:15	6
				22	.4'		.9'	97	:28	7
				19	.3'		47.0'	98	:44	8
	6.83	4	83-10	18	.2'		.2'	85	22:06	9
				18	.2'		.3'	52	:19	10
				14	.0'		.6'	70	:40	11
				17	.0'		.7'	63	:49	12
								68	:56	13
				15				68	23:06	14
				16	43.9'		48.1'	67	:15	15
				ABORTED						16
				15	.9'		.4'	67	:34	17
				16	.8'		.5'	58	:41	18

GMT DATE	INST	FORM #	LINE #	KNTS WIND	LONG	LAT	REL DEPTH	GMT TIME	TAPE	BATCH
11/13	7.83	5	83-10	16	42.8'		49.7'	82	00:05	69 1
				ABORTED						2
				14	43.8'		.0'	68	:13	3
				15	.8'		.3'	62	:23	4
				12	.7'		.4'	60	:30	5
								59	:37	6
				11	.7'		.8'	65	:48	7
				10	.7'		50.2'	58	01:08	8
			83-8	12	.7'		.6'	67	:30	9
								68	:43	10
				13	.8'		51.0'	67	:50	11
				12	.9'		.2'	67	:59	12
				10	.9'		.4'	69	02:08	13
8.83	3		83-8					80	:30	14
								100	:38	15
				10	44.0'		52.3'	120	:50	16
								120	:	17

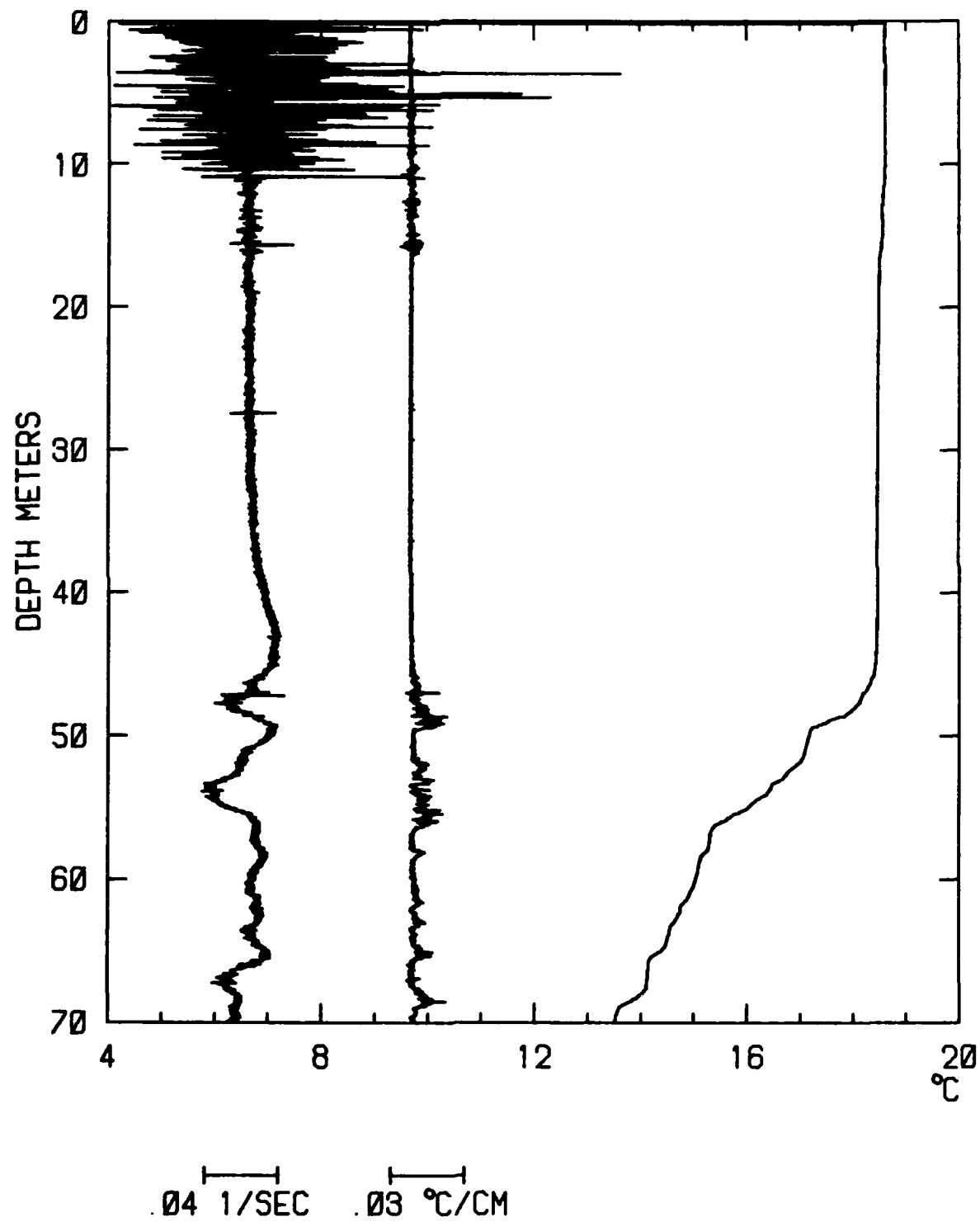
25-OCT-83 17:09

TAPE 13
FILE 2

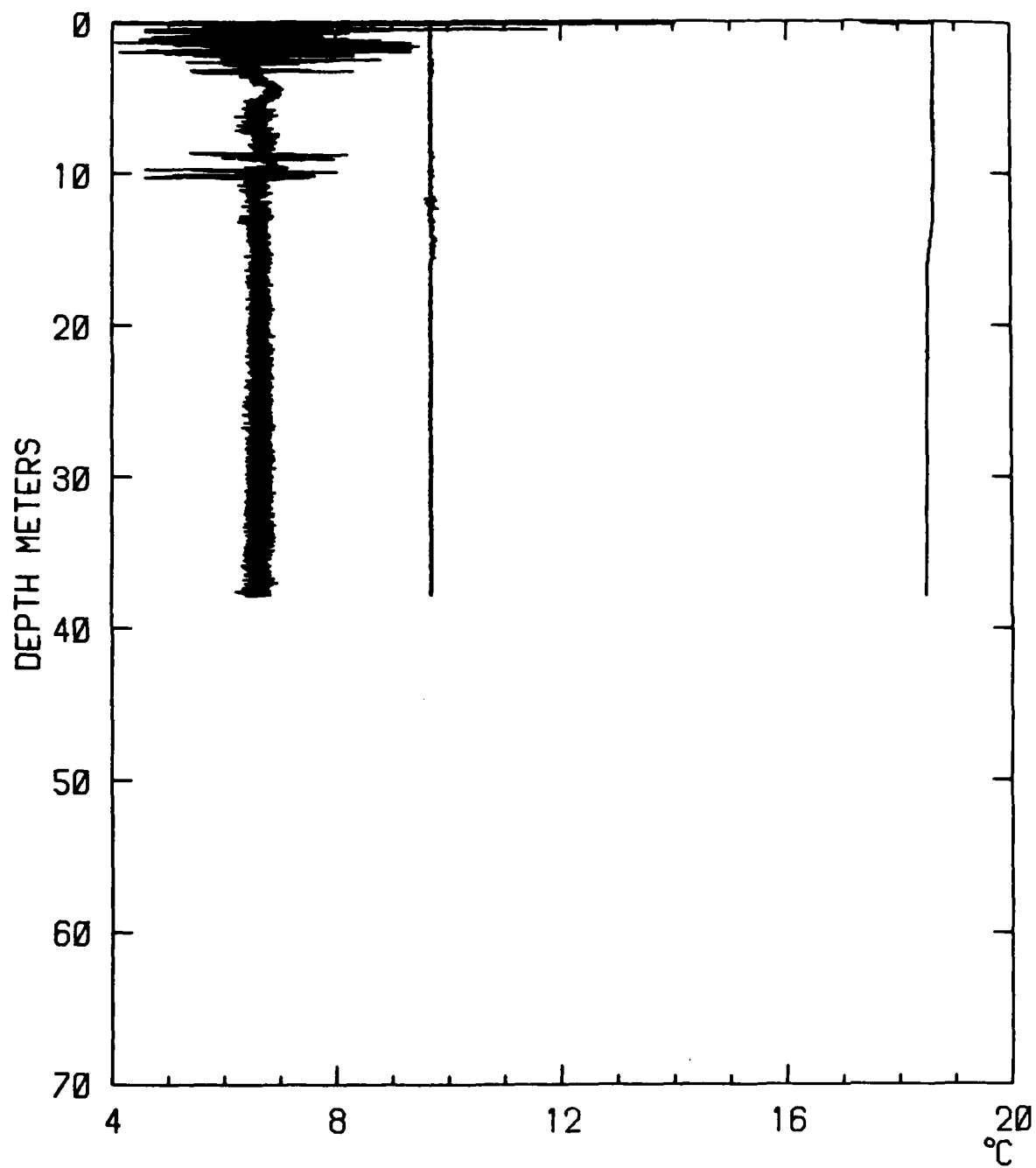
25-OCT-83 17:20

TAPE 13
FILE 3

25-OCT-83 18:12

TAPE 13
FILE 5

25-OCT-83 18:30

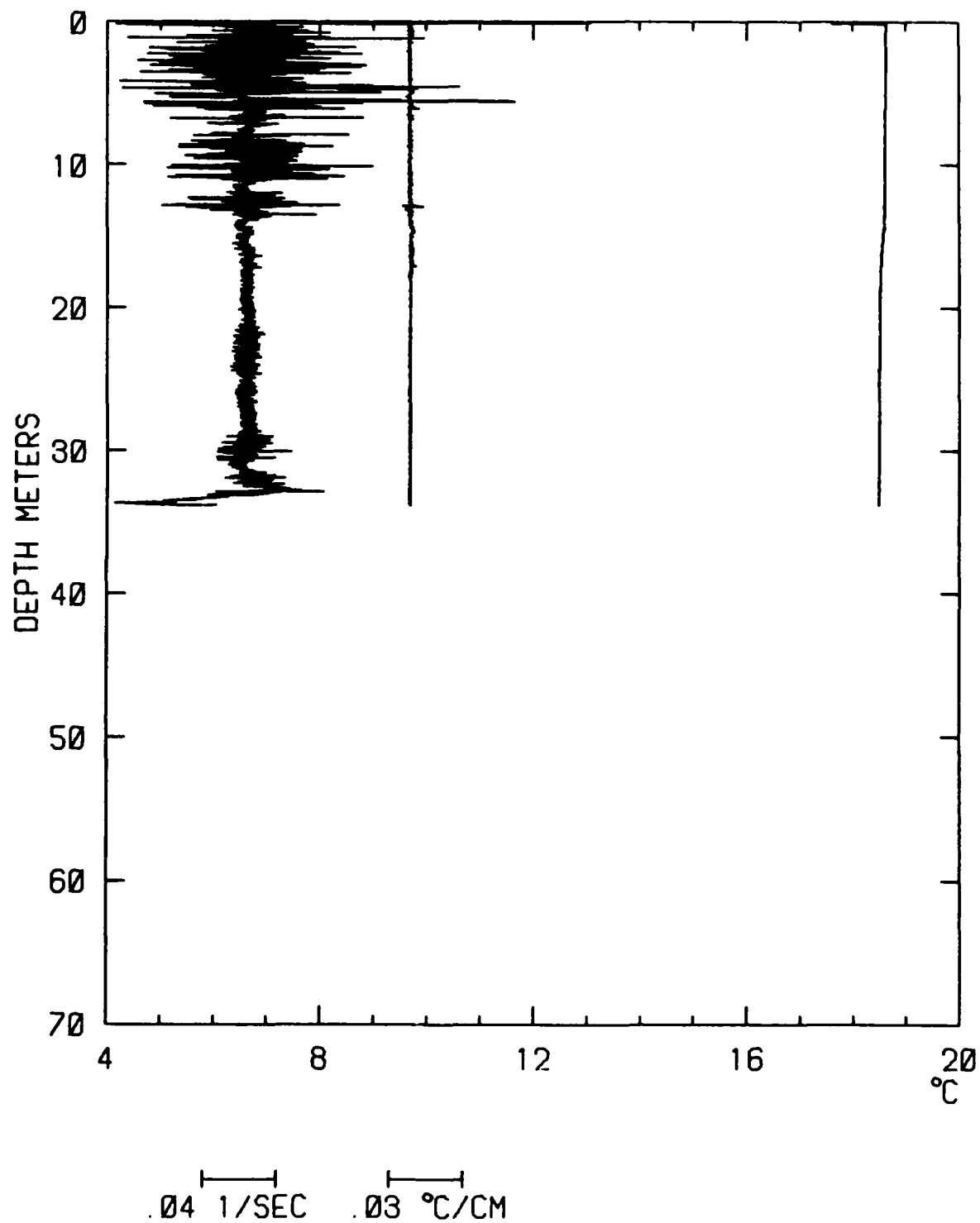
TAPE 13
FILE 6

.04 1/SEC .03 °C/CM

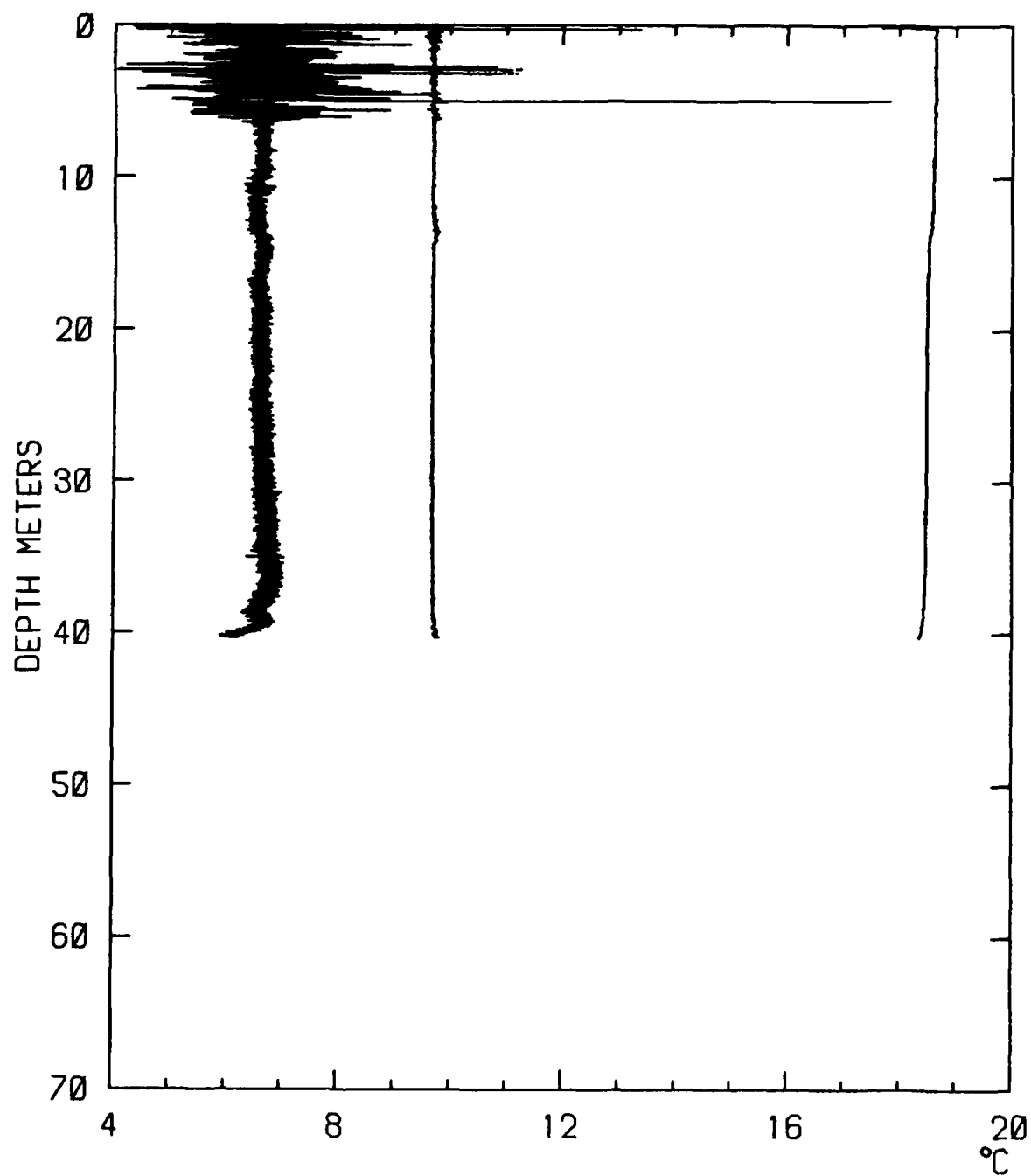
25-OCT-83 18:39

21

TAPE 13
FILE 7

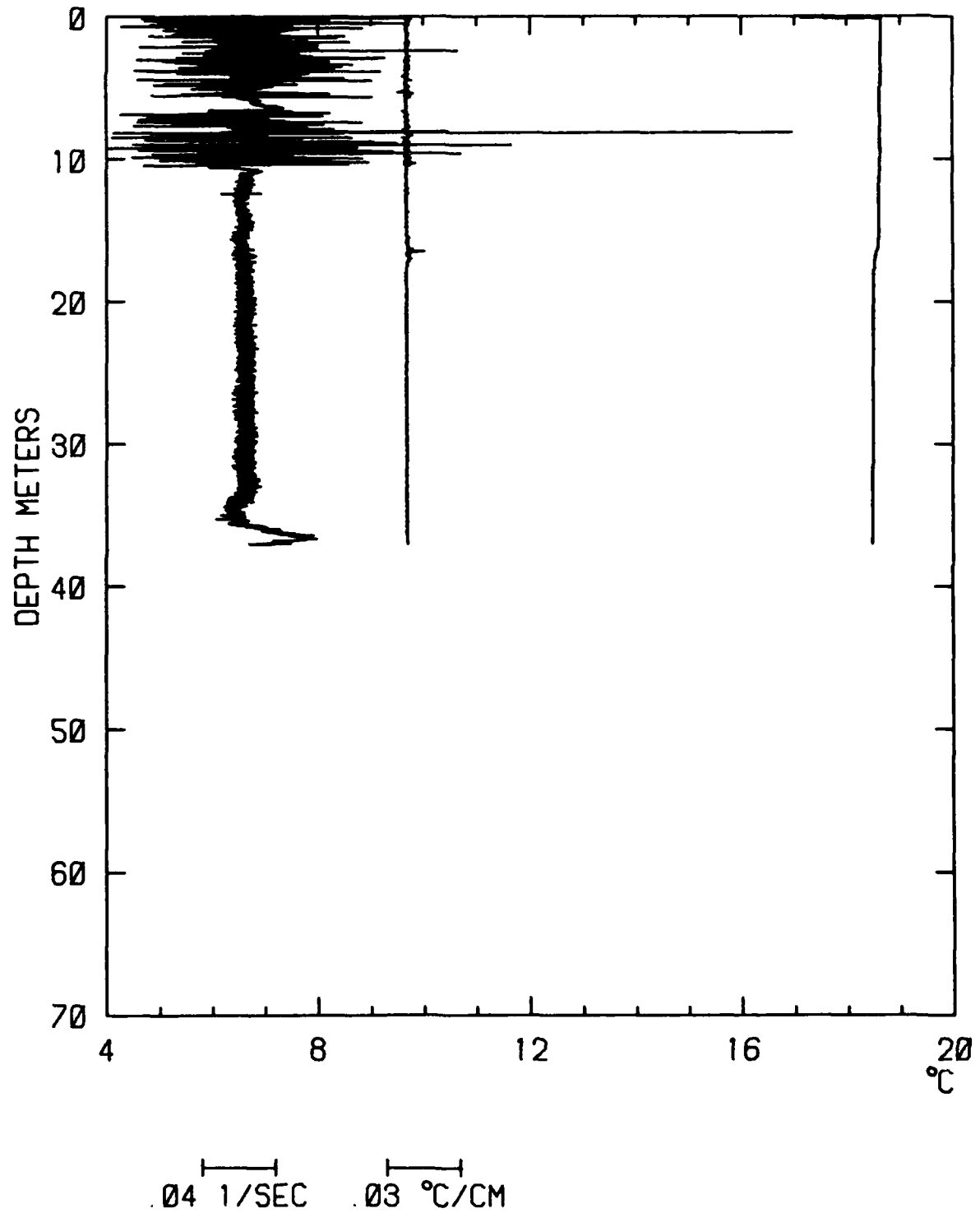


25-OCT-83 19:35

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FILE 8

04 1/SEC 03 °C/CM

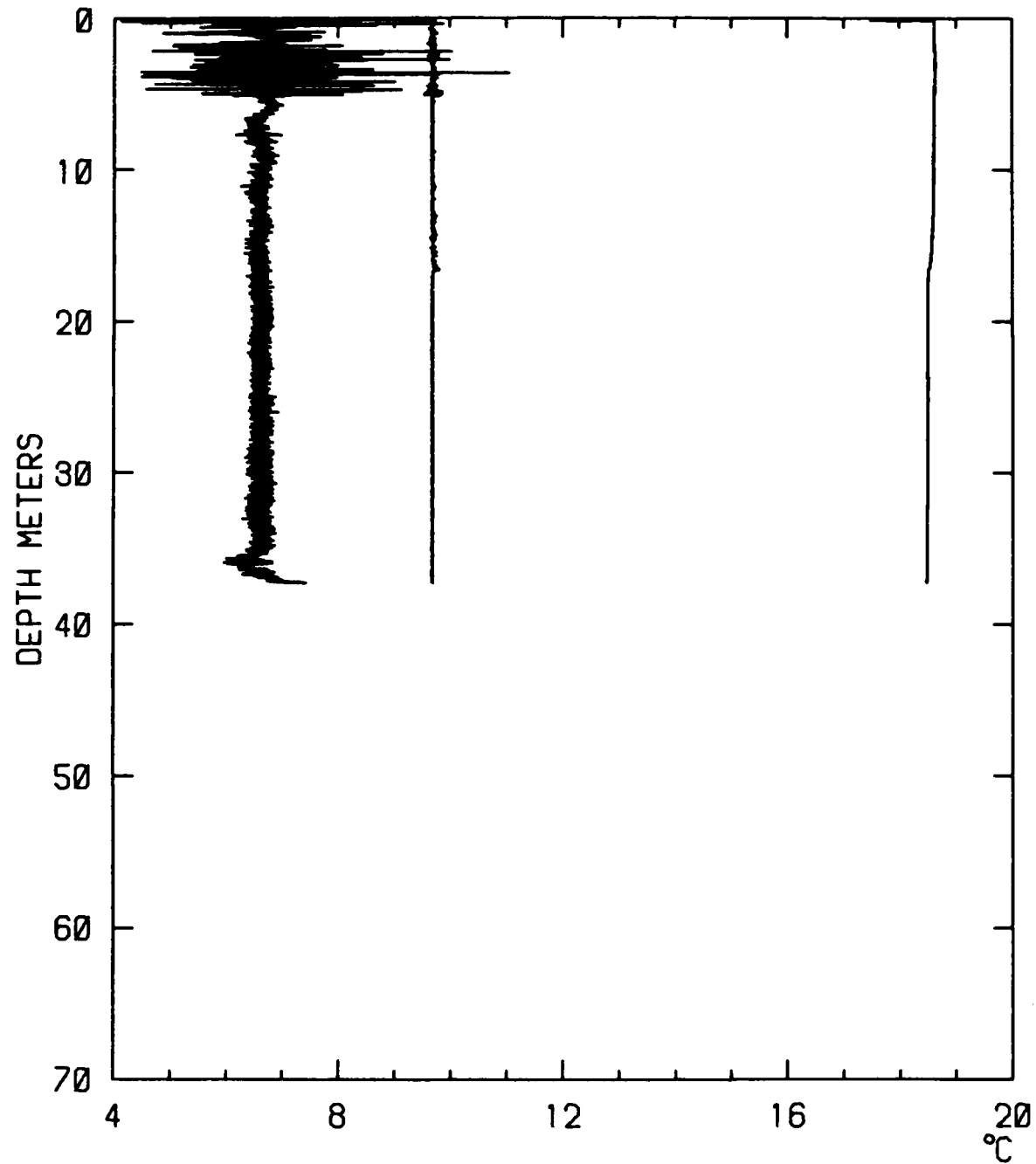
25-OCT-83 19:47

TAPE 13
FILE 9

25-OCT-83 19:55

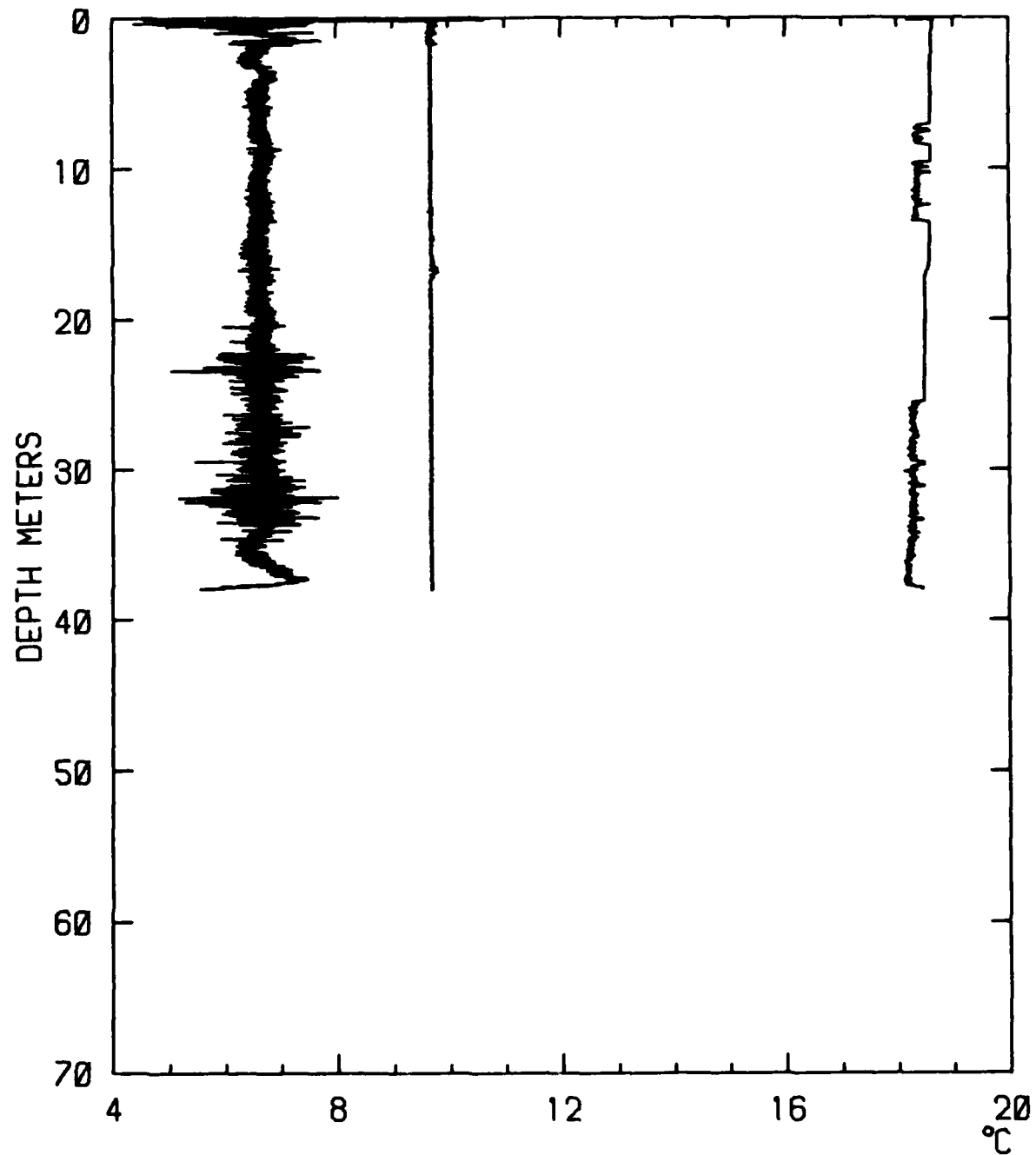
TAPE 13

FILE 10



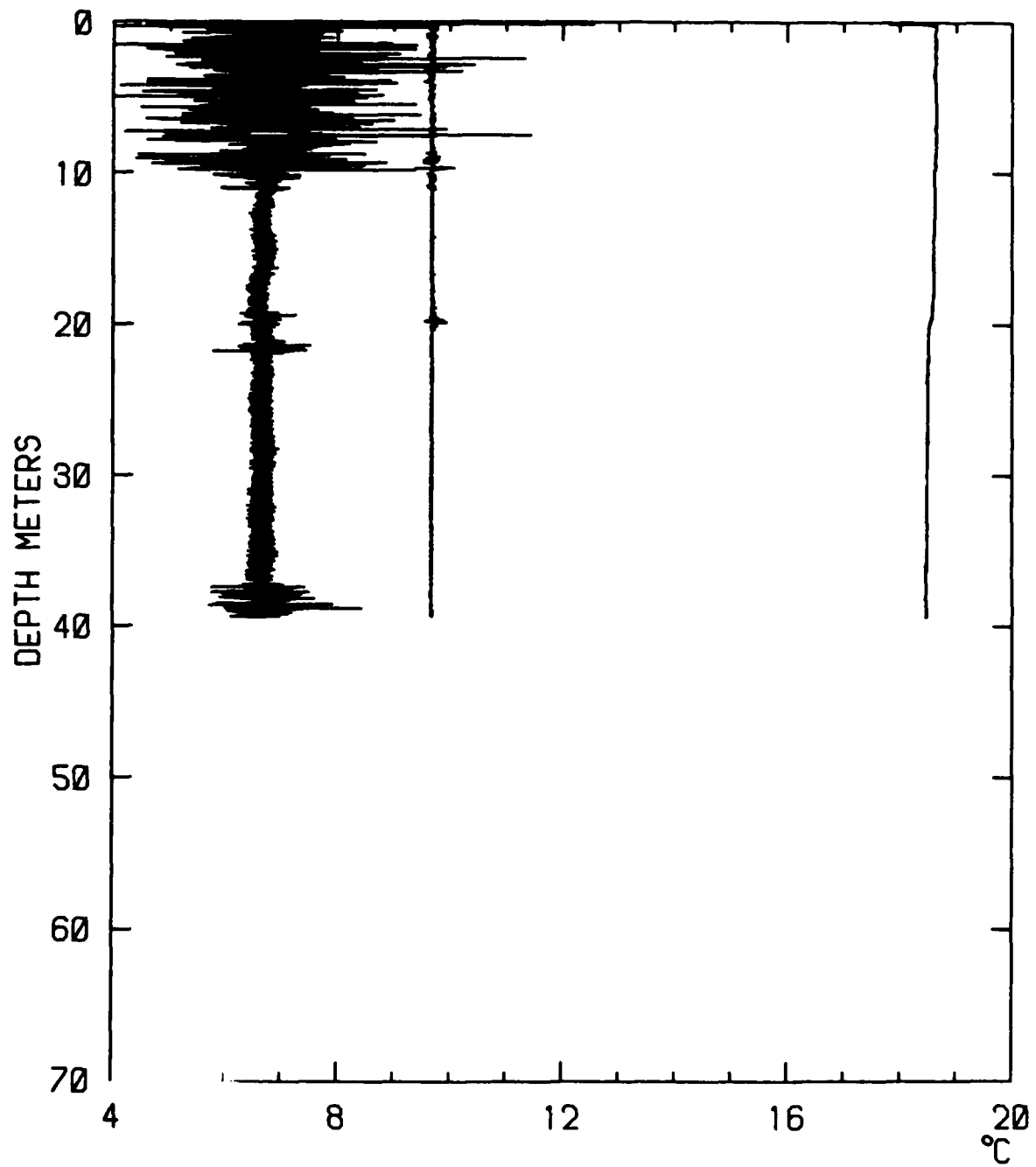
.04 1/SEC .03 °C/CM

25-OCT-83 20:08

TAPE 13
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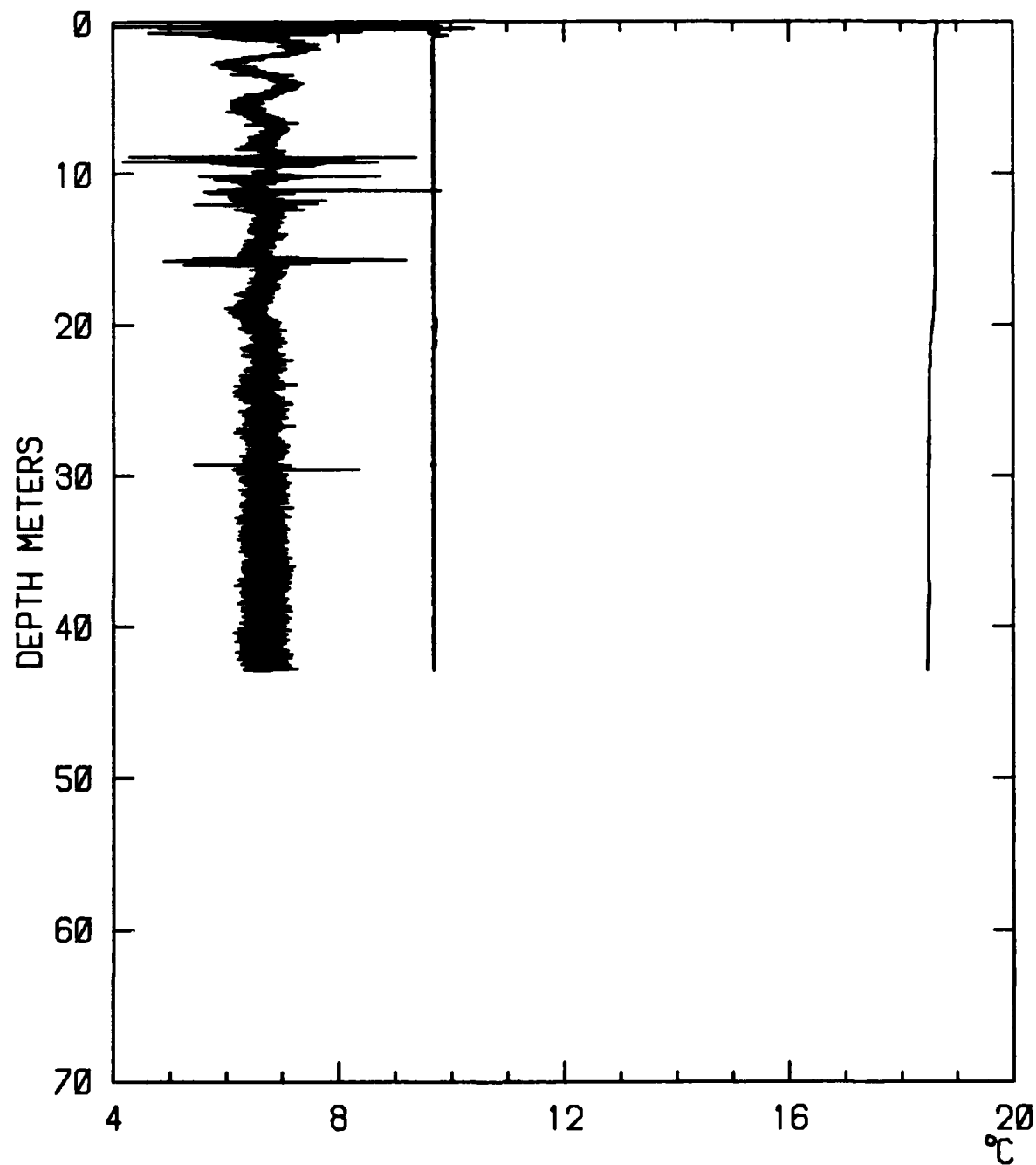
04 1/SEC 03 °C/CM

25-OCT-83 20:23

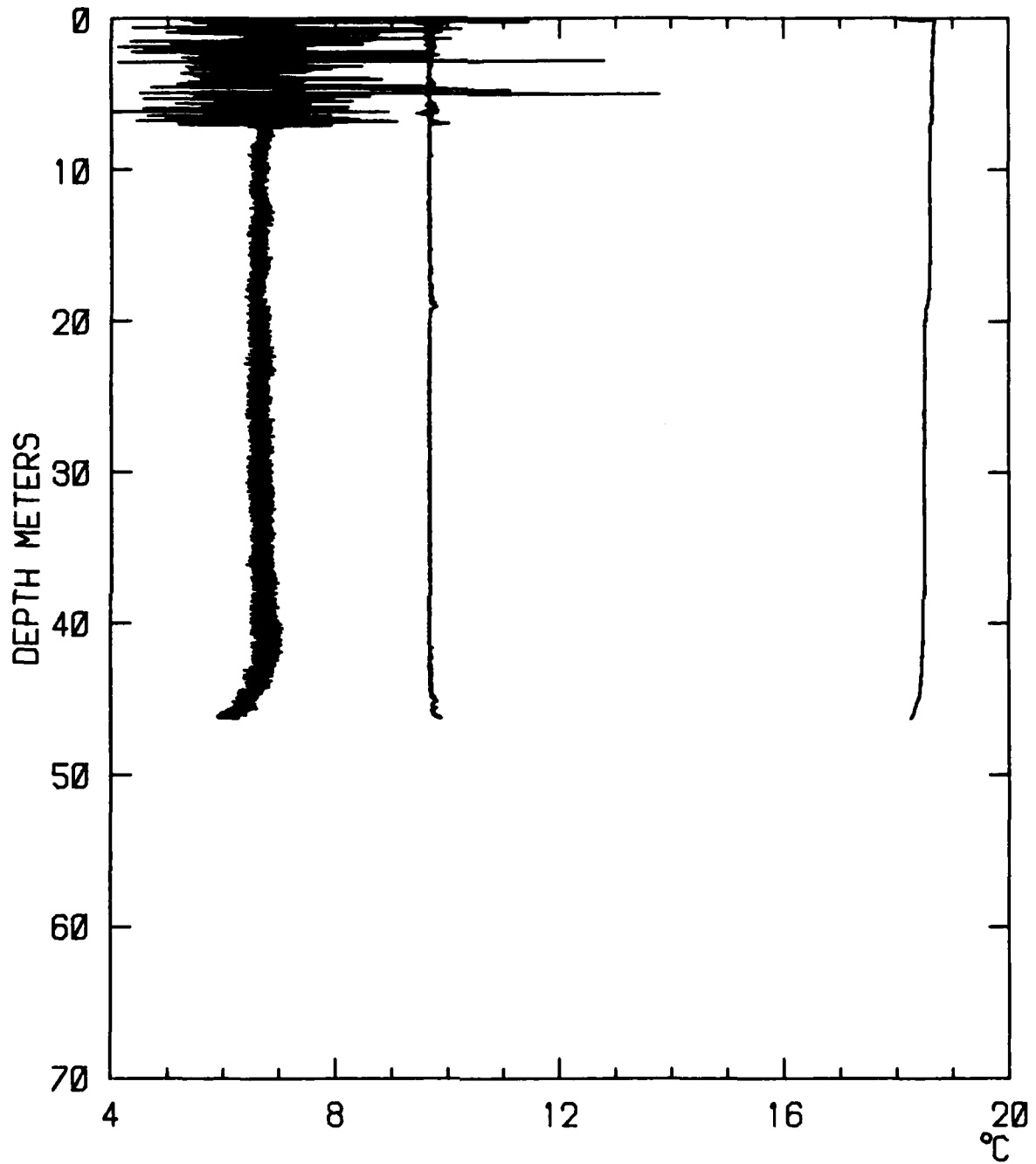
TAPE 14
FILE 1

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25-OCT-83 20:29

TAPE 14
FILE 2

25-OCT-83 20:39

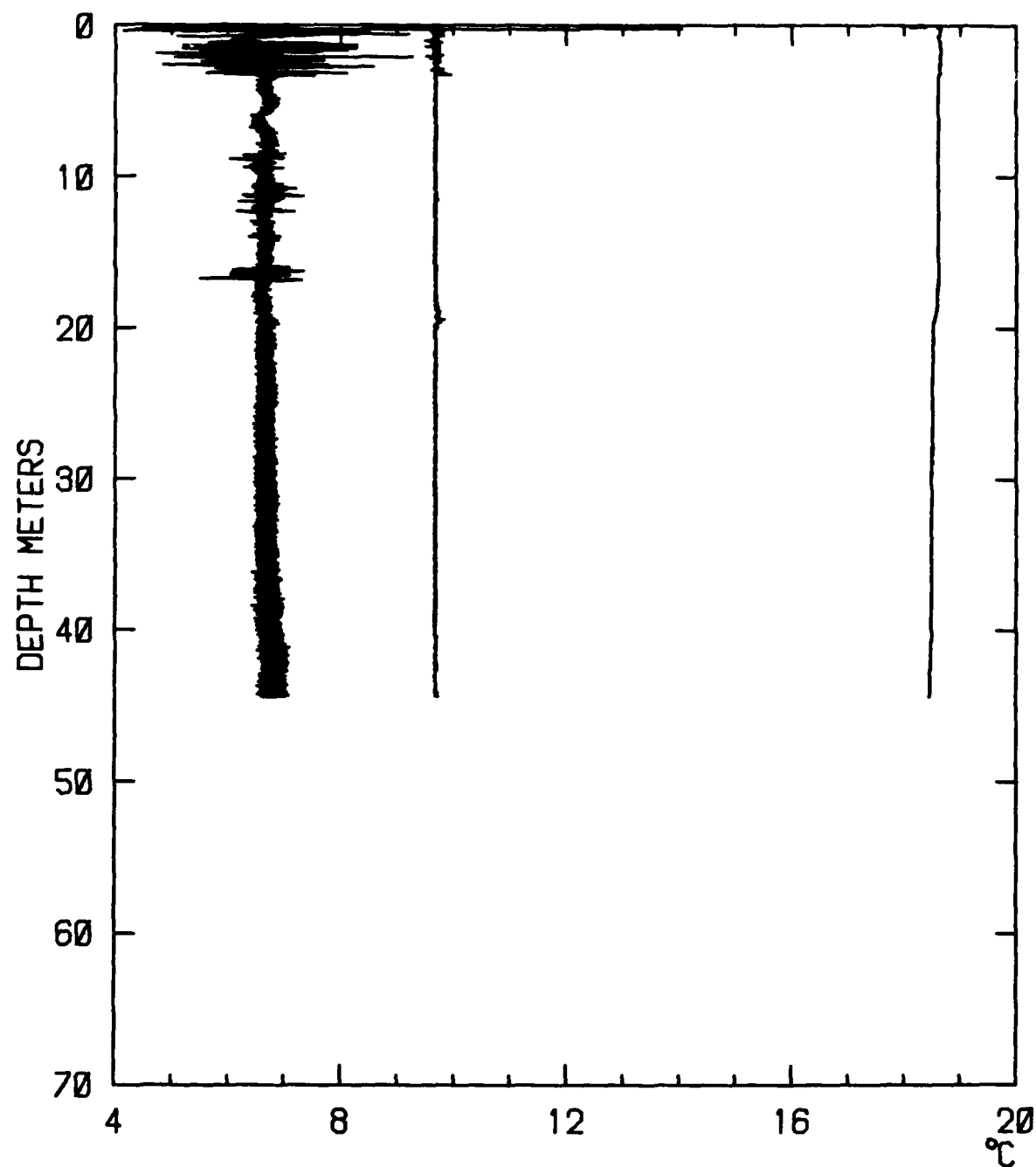
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04 1/SEC 03 °C/CM

25-OCT-83 20:50

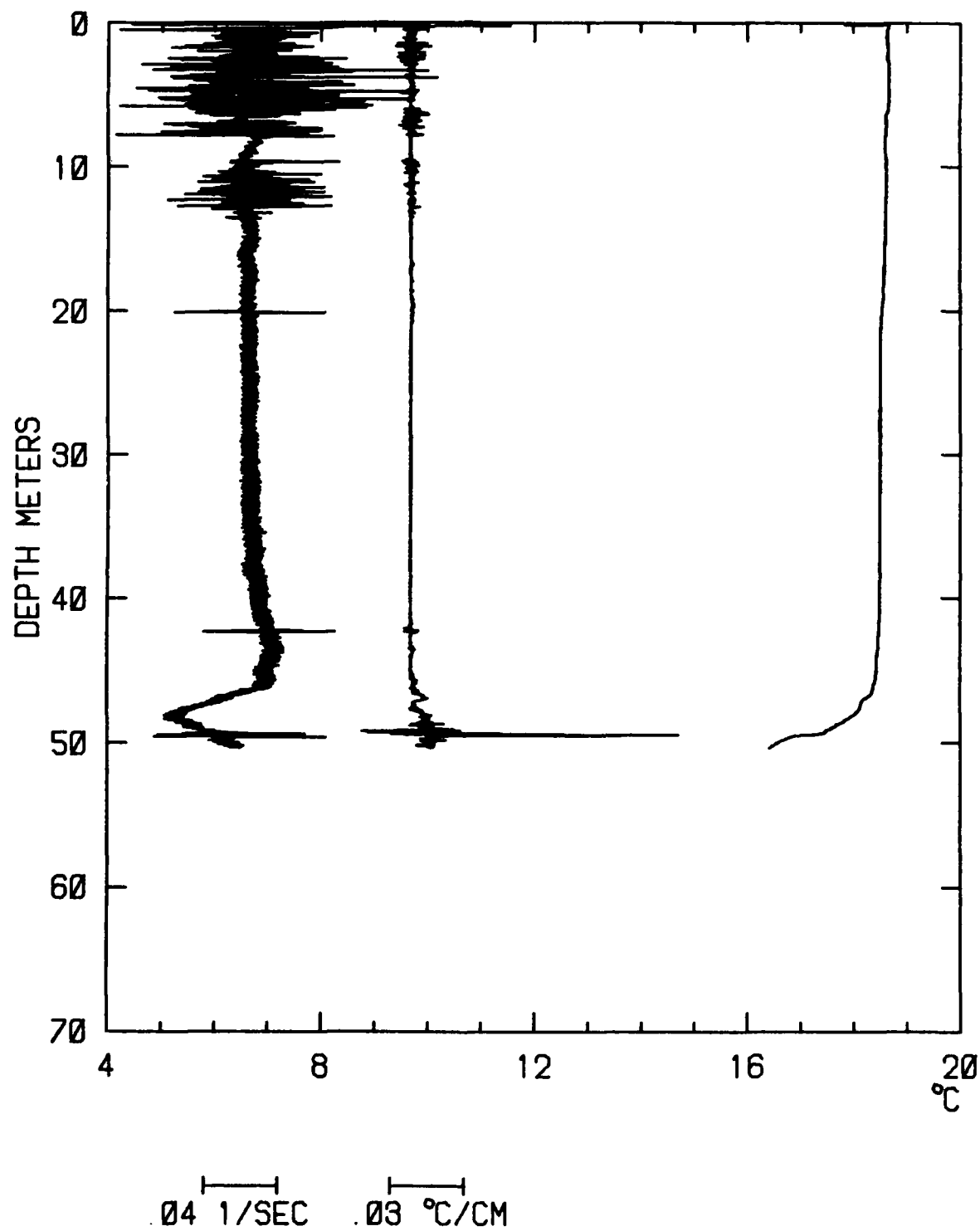
29

TAPE 14
FILE 4

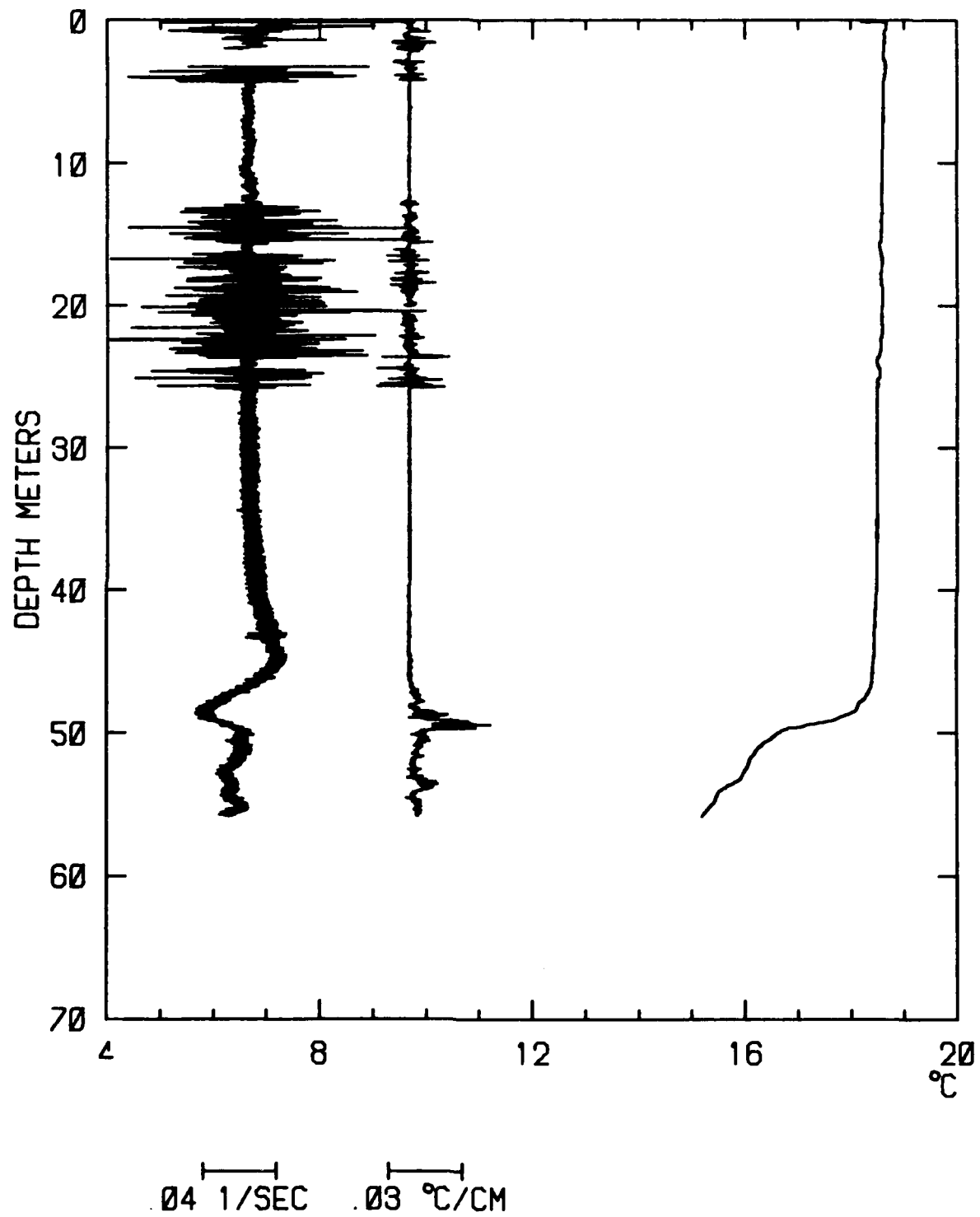


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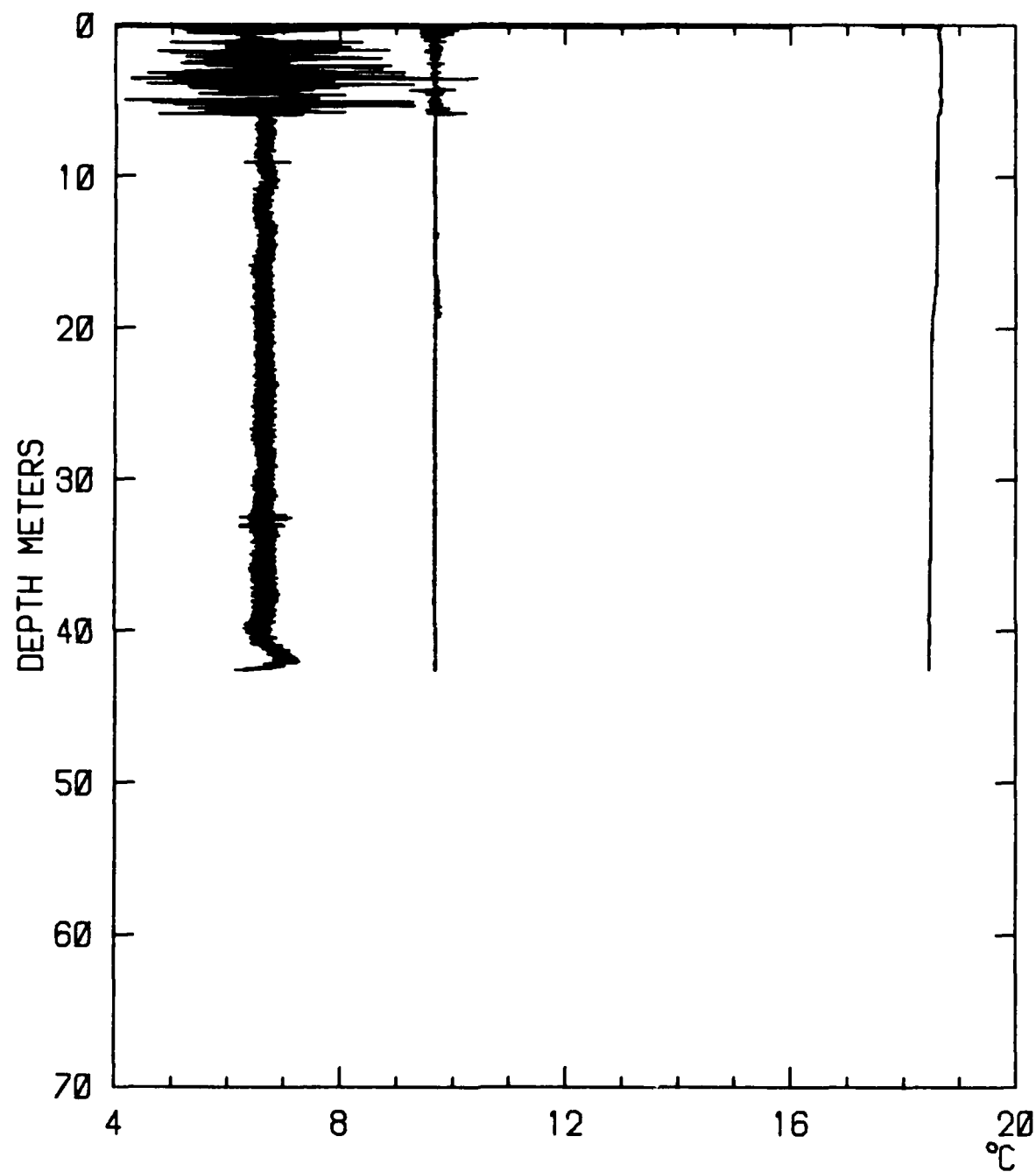
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TAPE 14
FILE 5

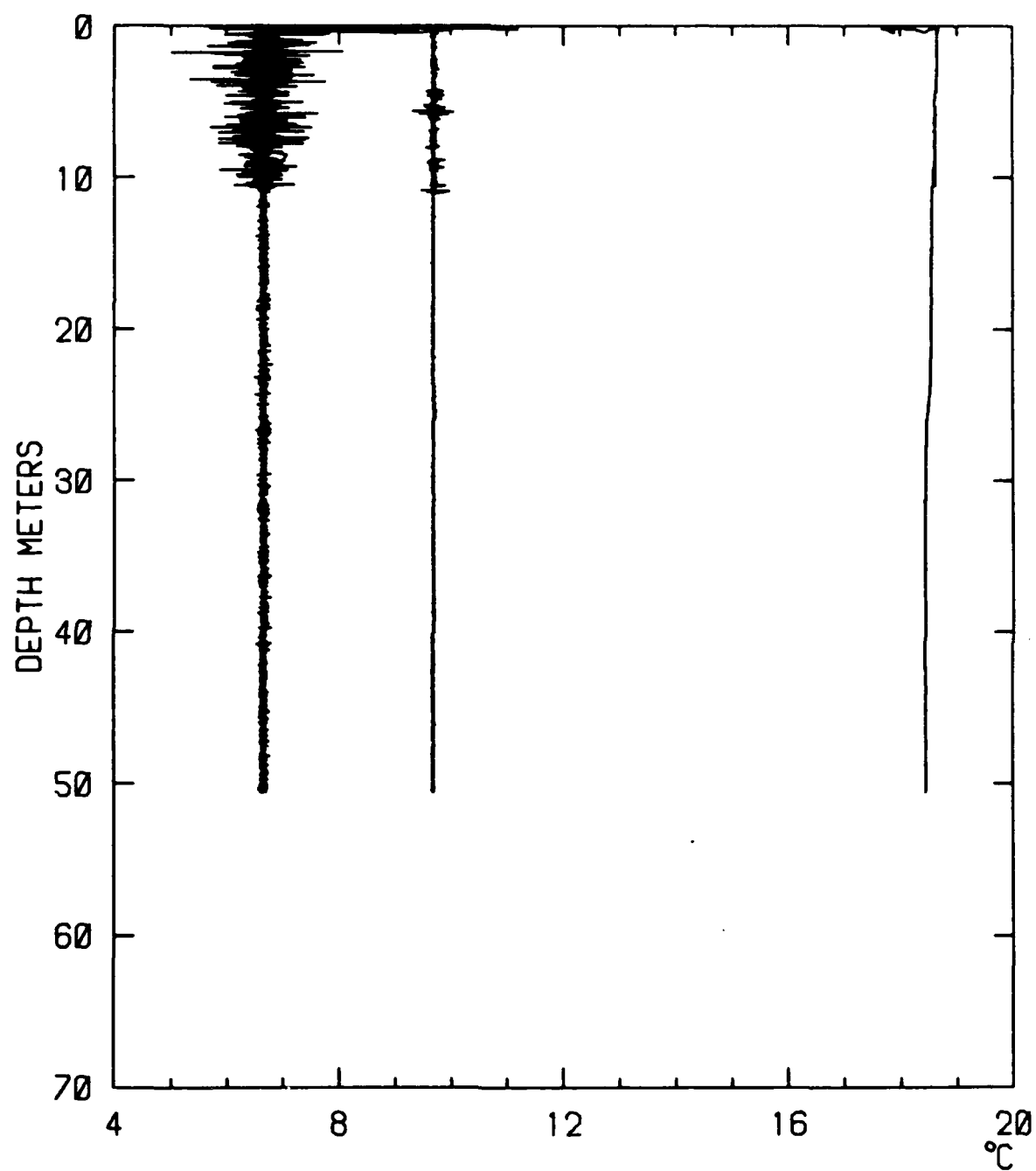
25-OCT-83 21:03

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FILE 6

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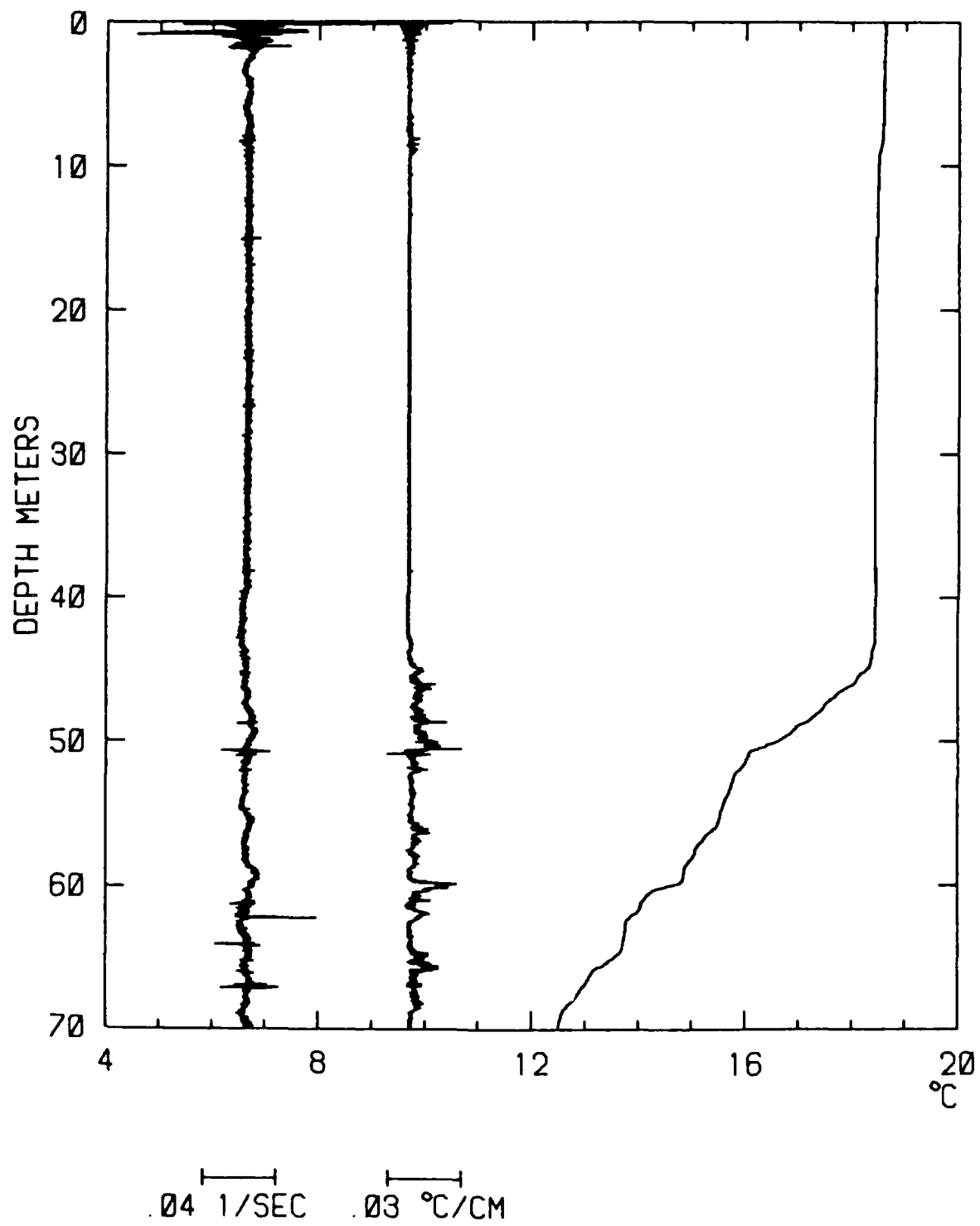
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FILE 7

26-OCT-83 00:37

TAPE 14
FILE 14

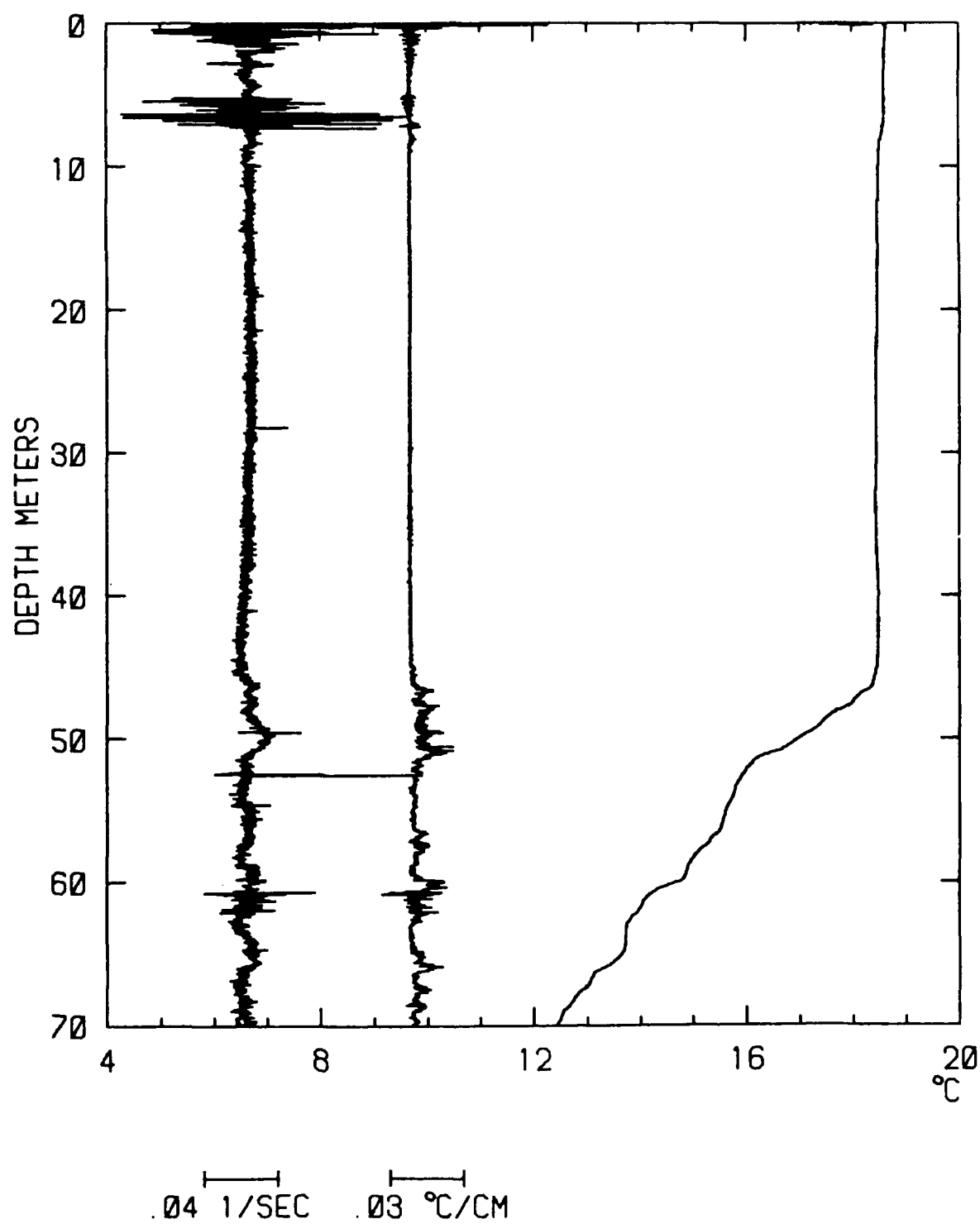
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26-OCT-83 17:33

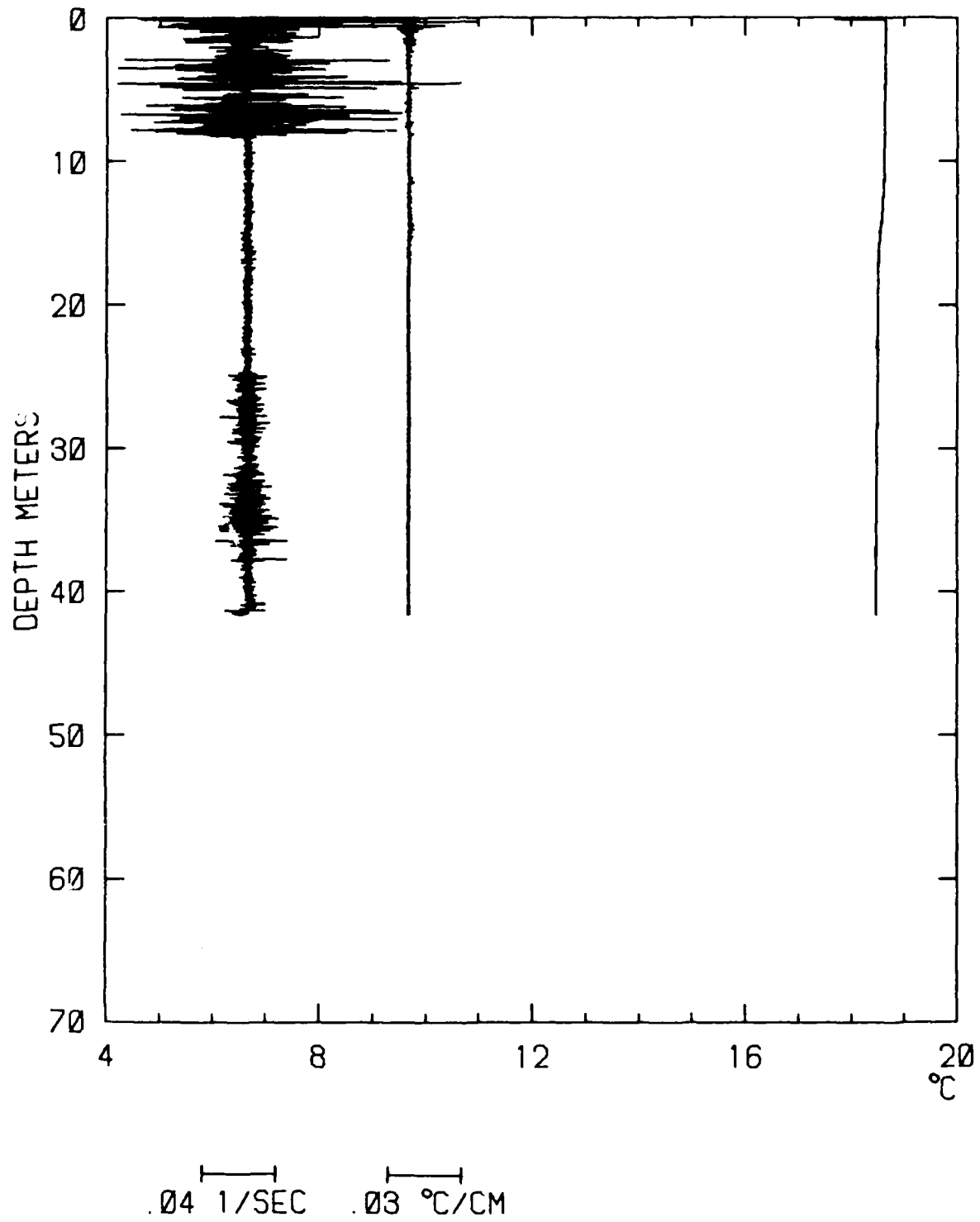
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26-OCT-83 17:45

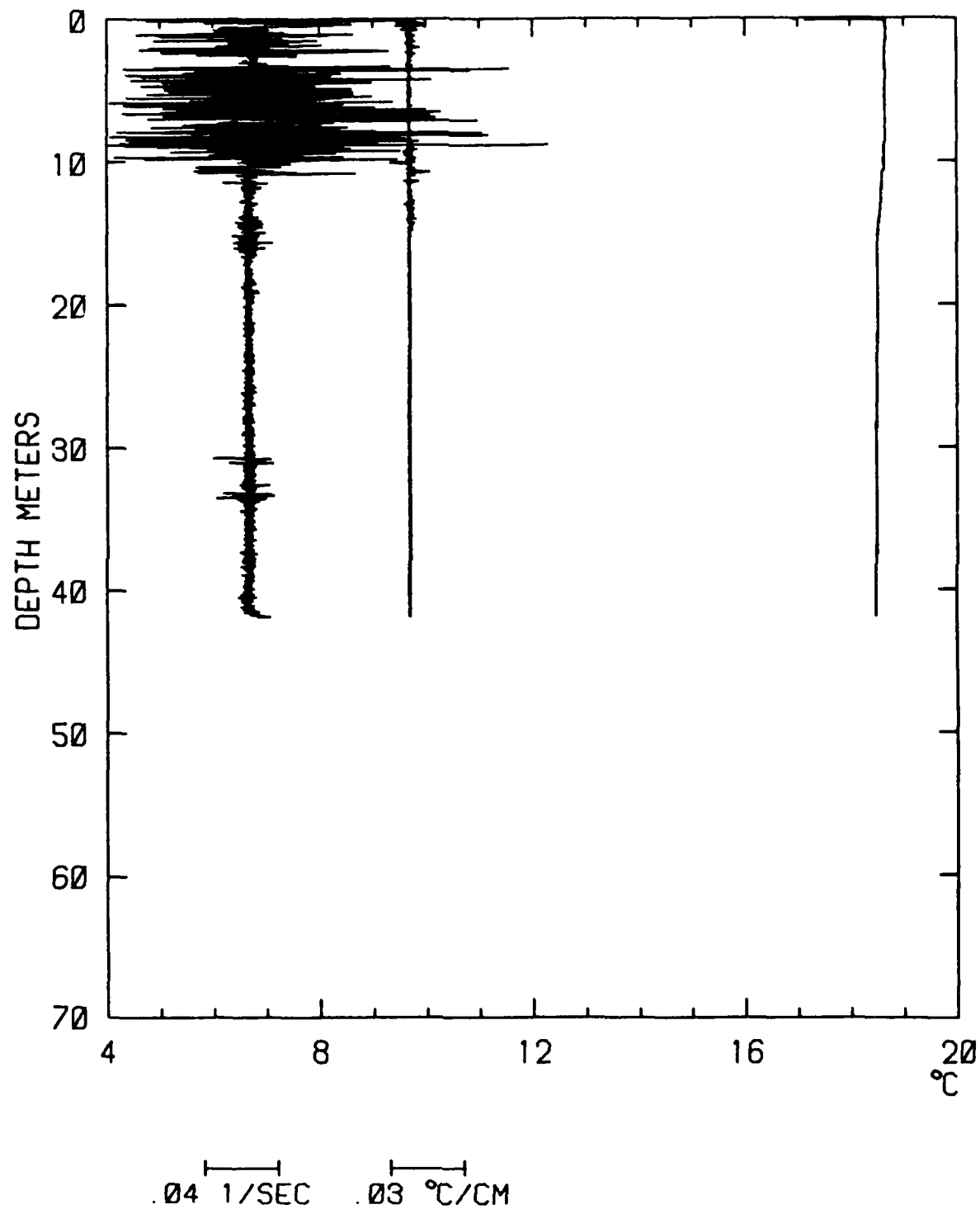
TAPE 16
FILE 2



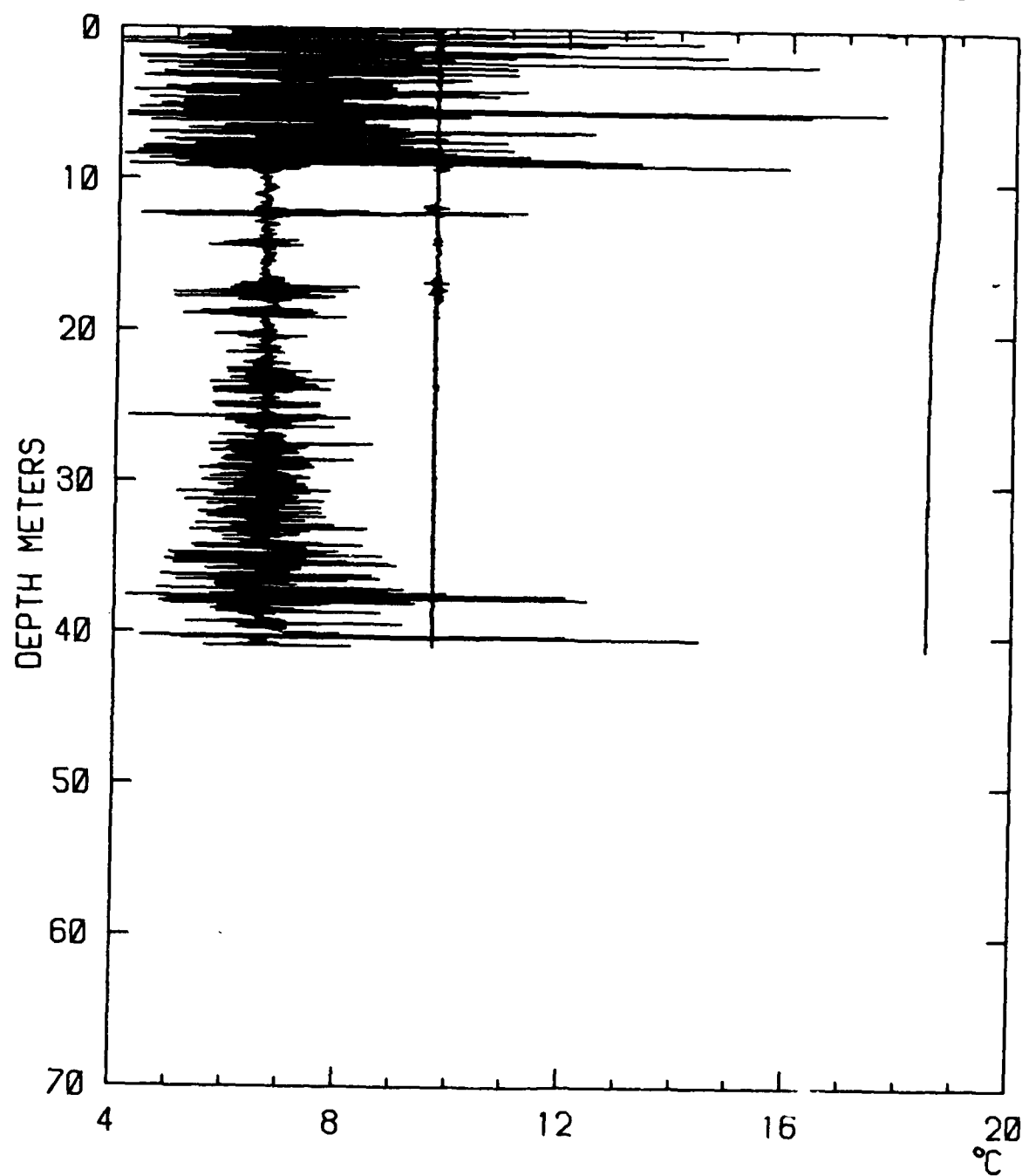
26-OCT-83 17:55

TAPE 16
FILE 3

26-OCT-83 18:00

TAPE 16
FILE 4

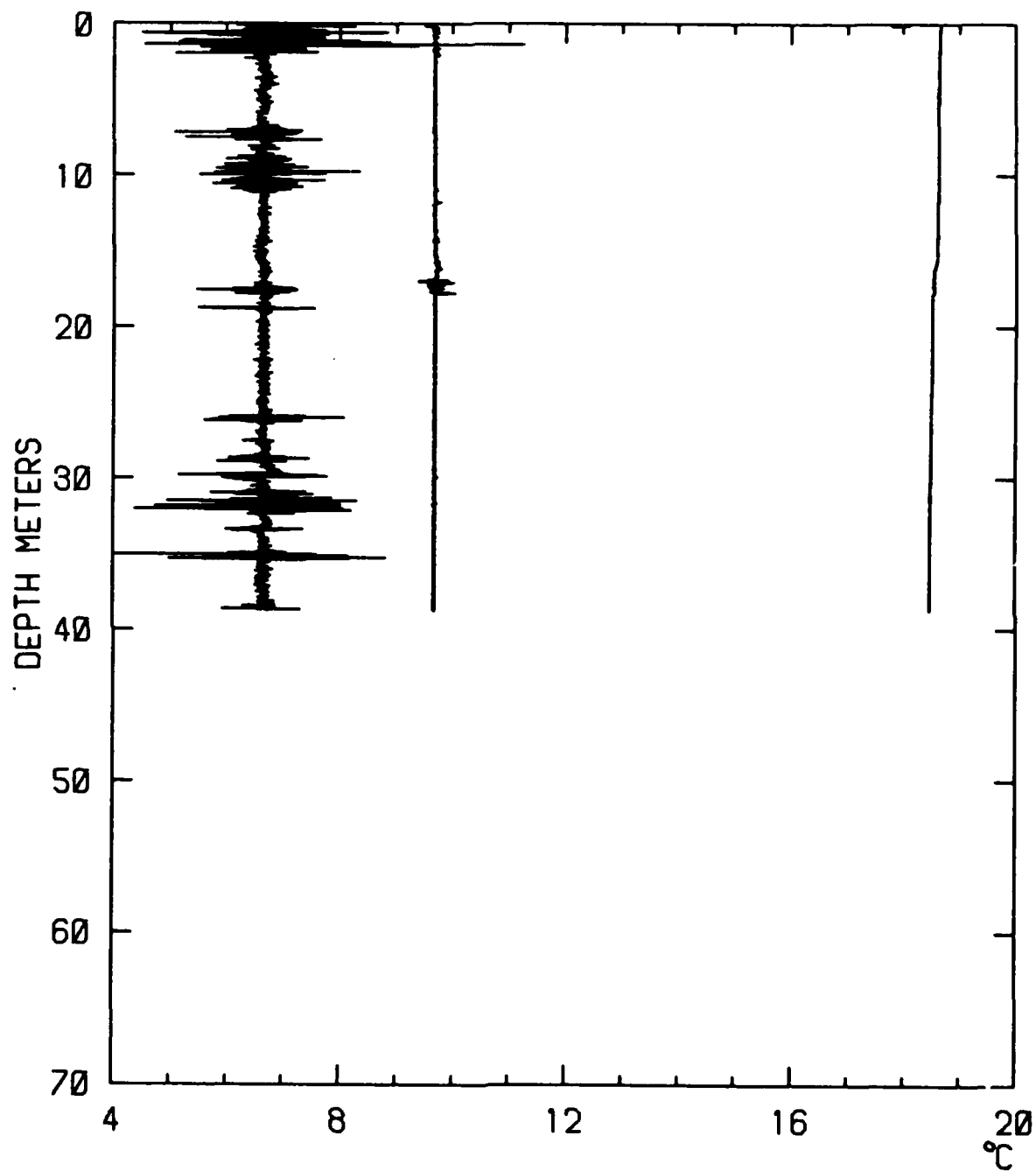
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FILE 5

26-OCT-83 18:13

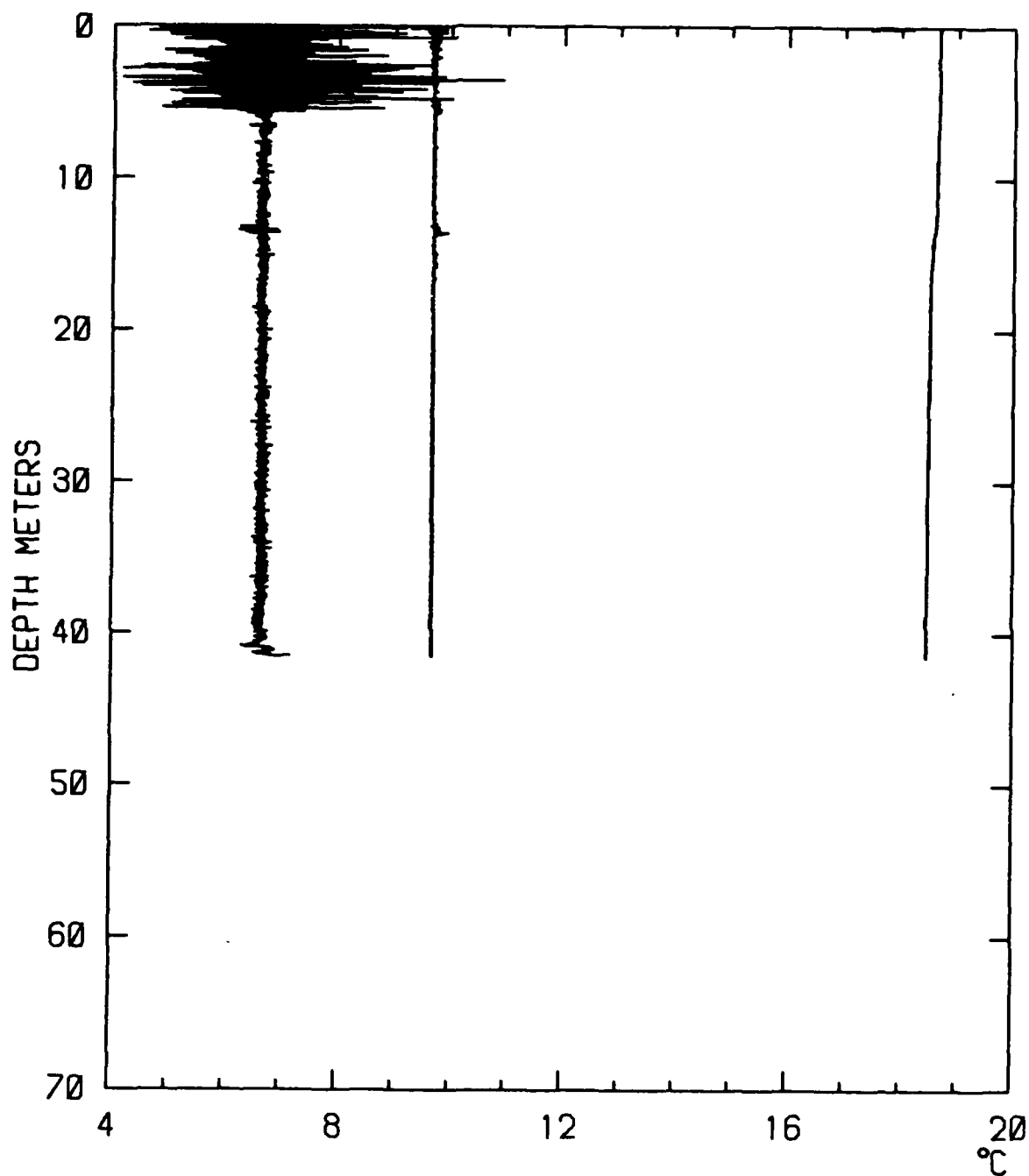
59

TAPE 16
FILE 6



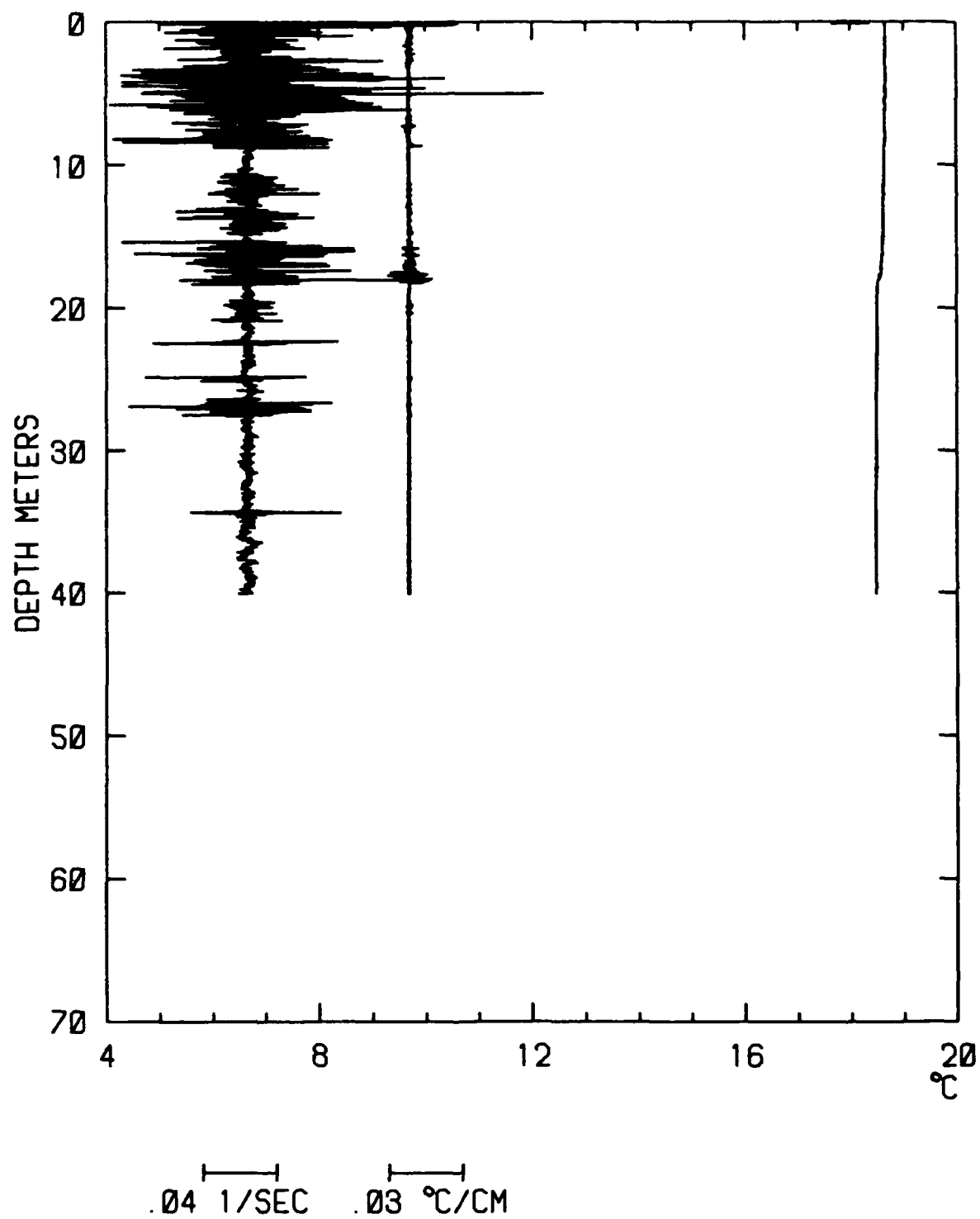
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26-OCT-83 18:22

TAPE 16
FILE 7

.04 1/SEC .03 °C/CM

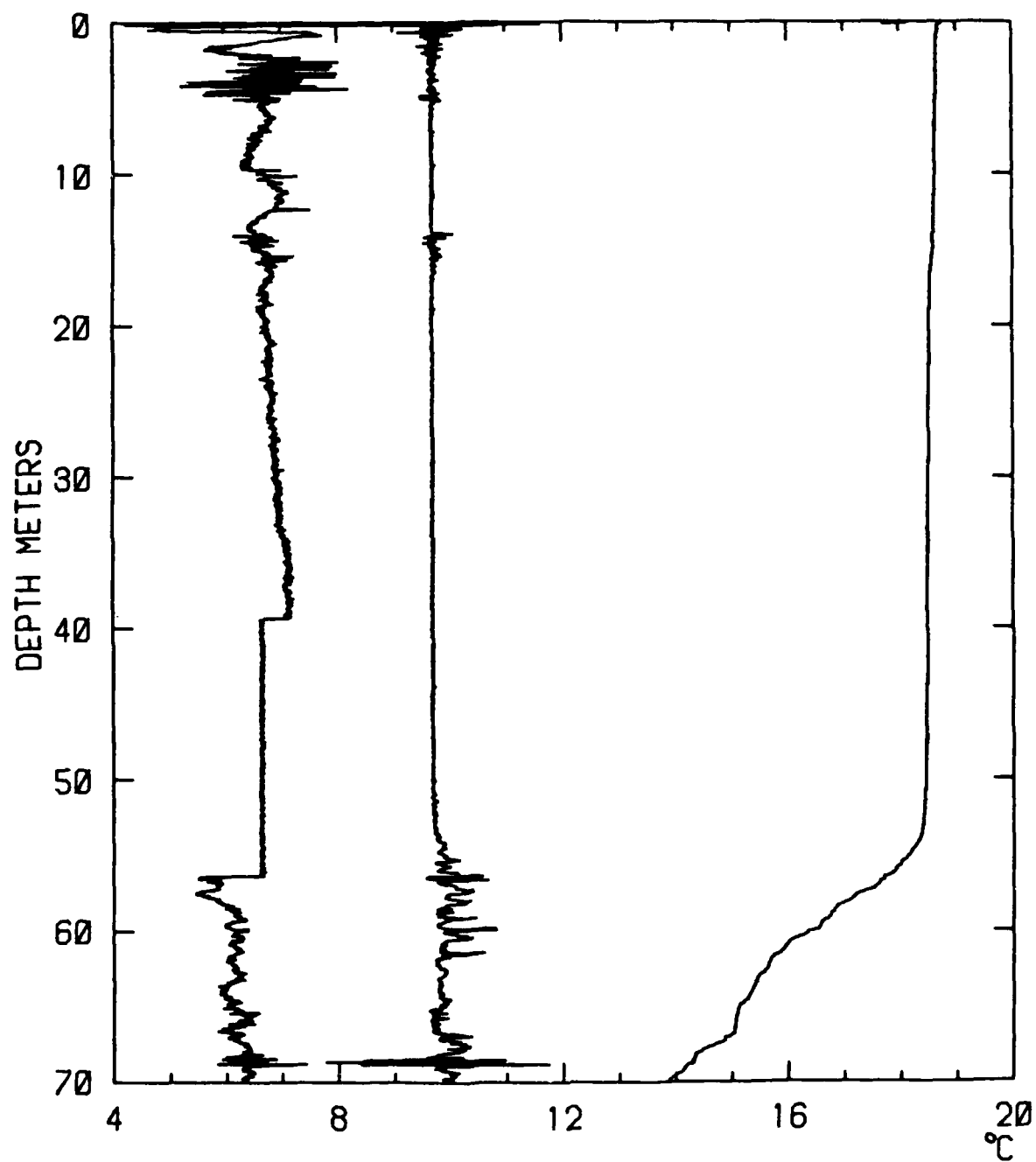
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26-OCT-83 19:45

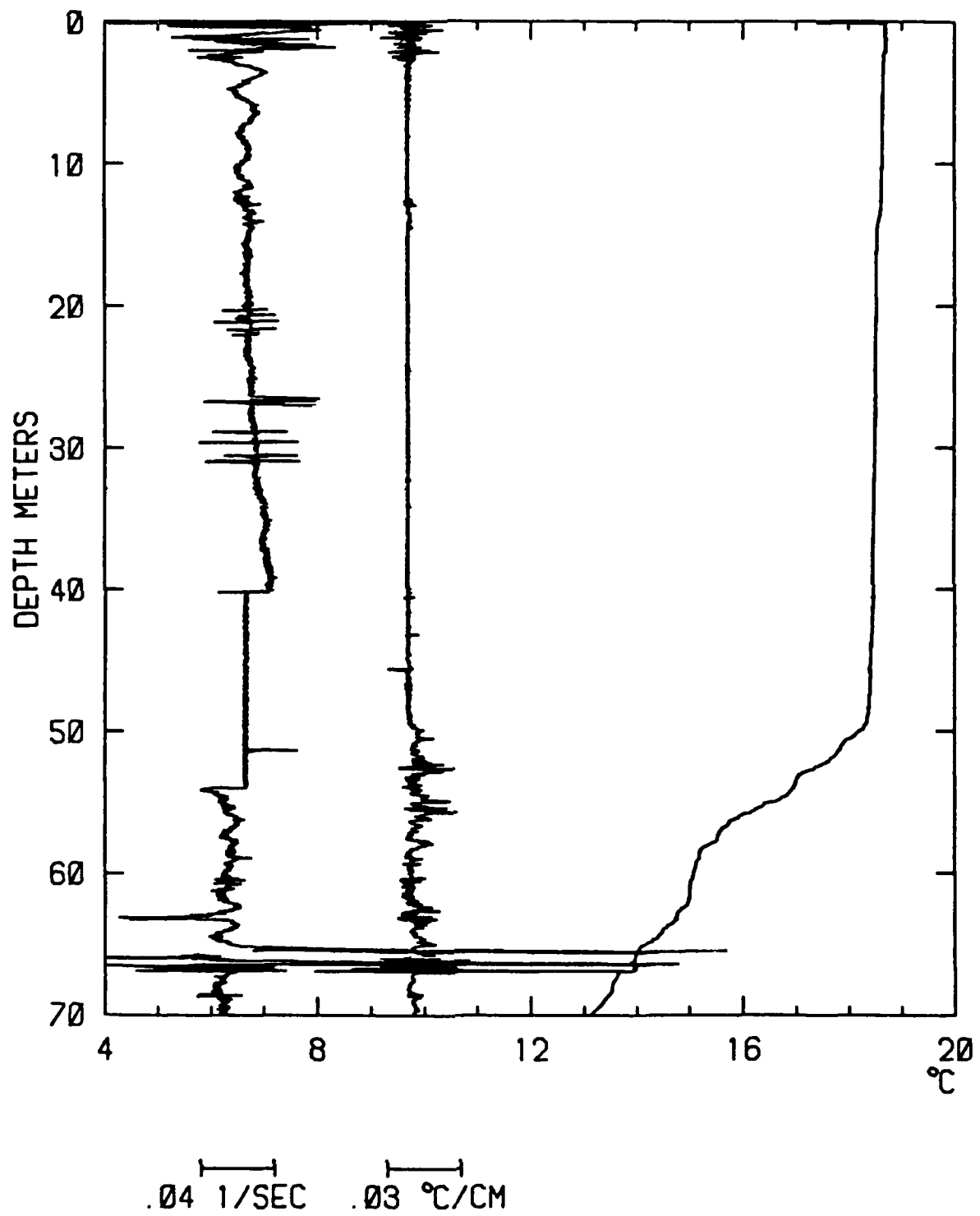
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FILE 10

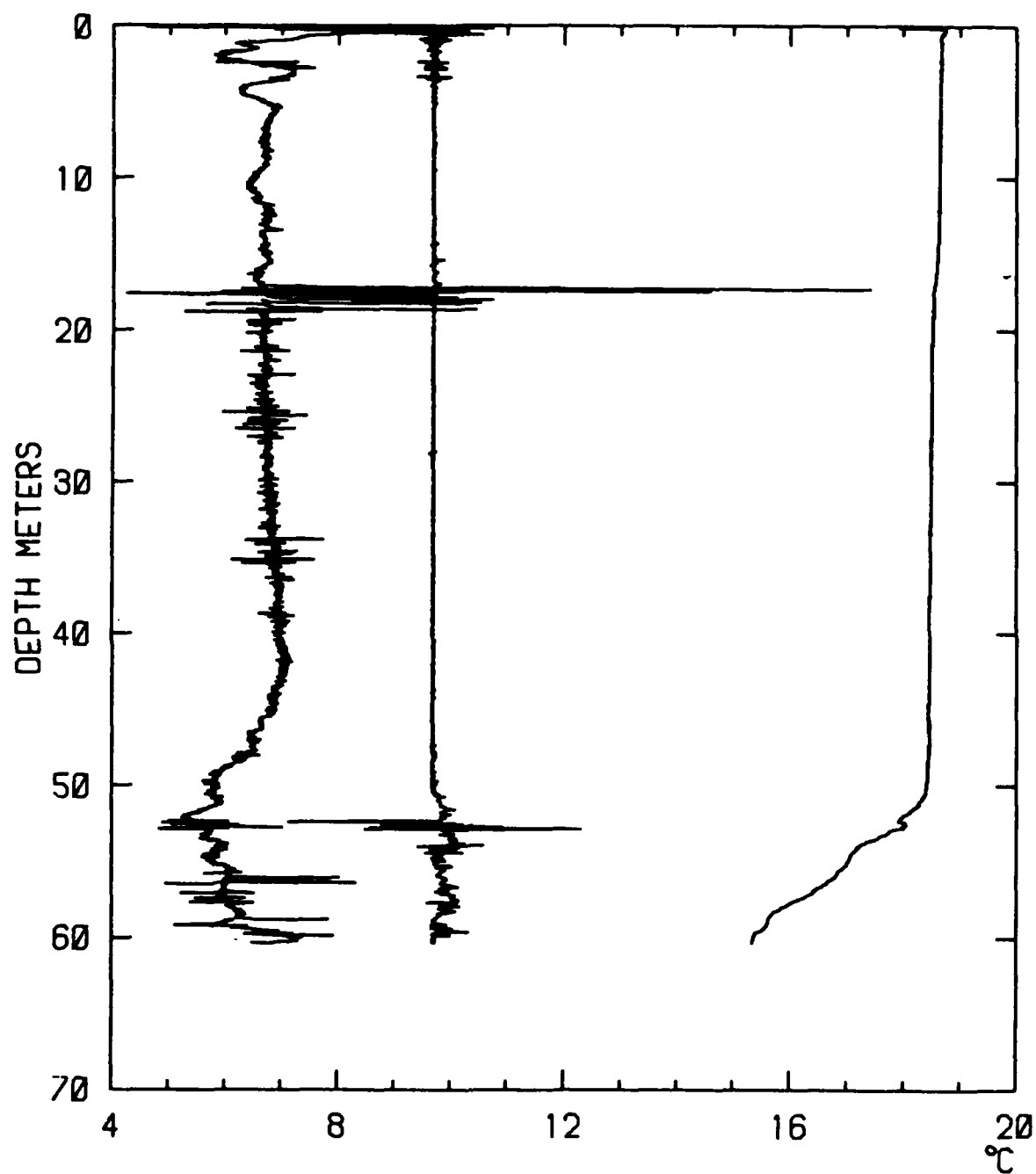


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26-OCT-83

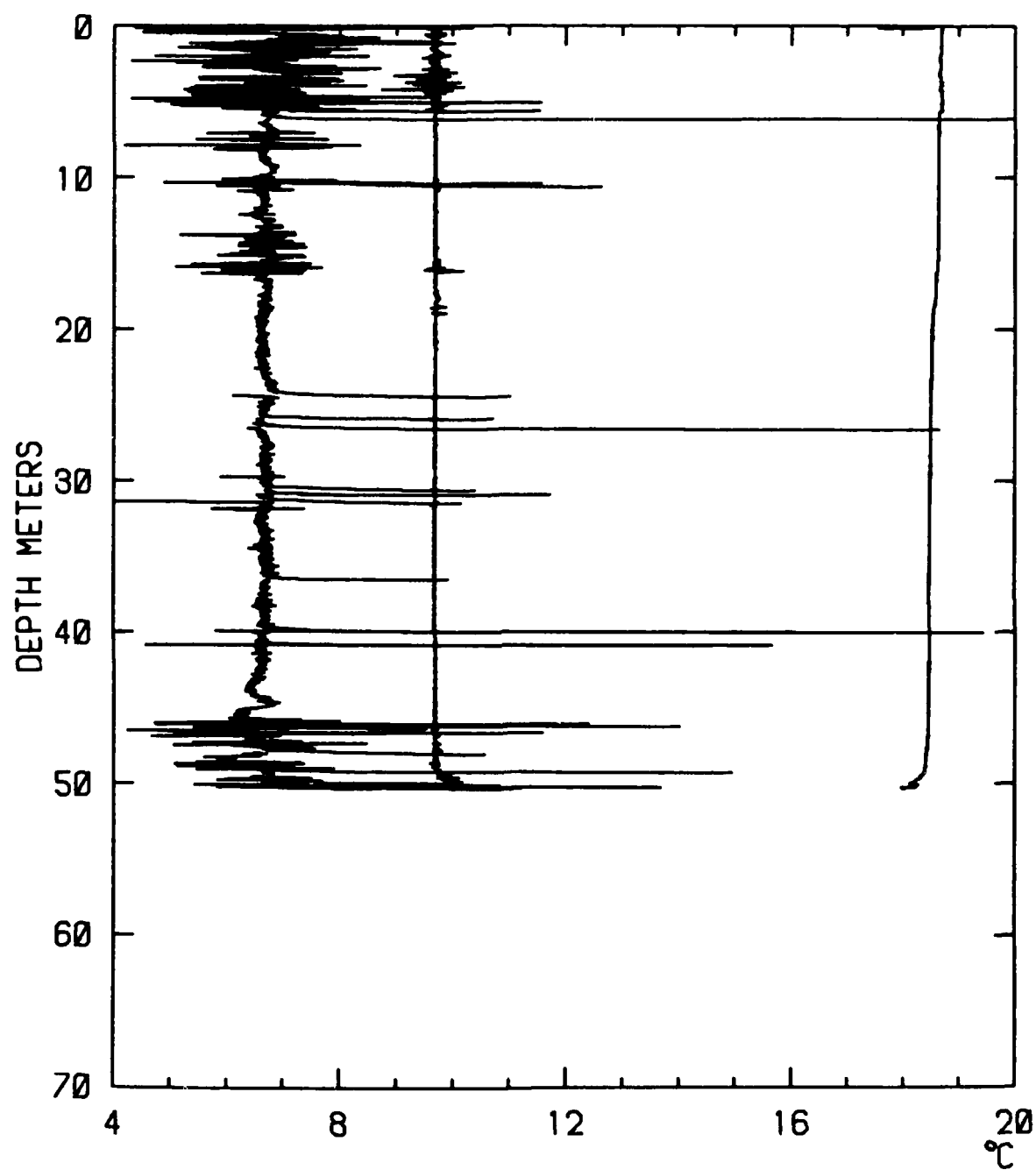
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FILE 11

26-OCT-83 20:31

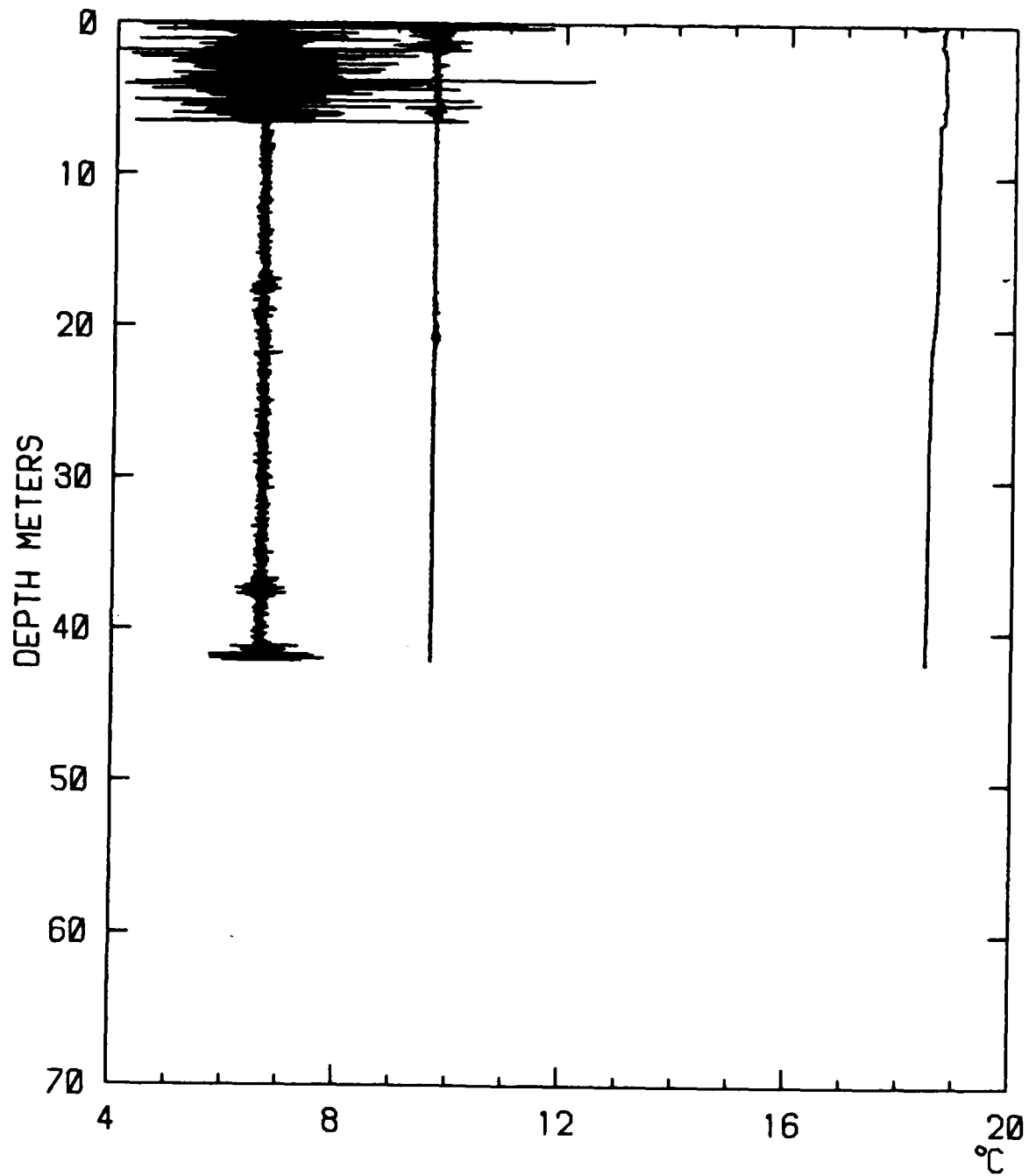
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26-OCT-83 20:38

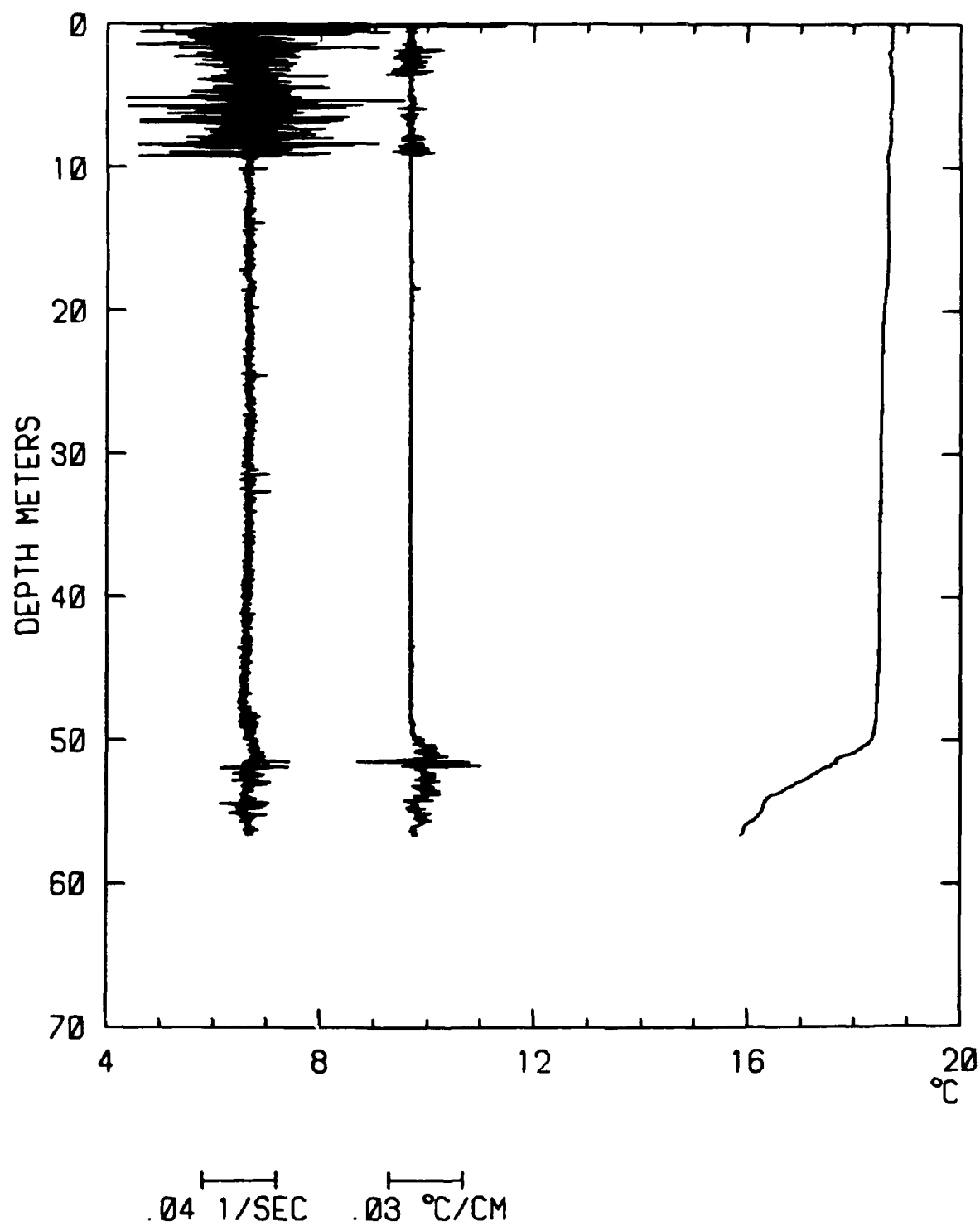
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FILE 13

26-OCT-83 21:30

TAPE 16
FILE 14

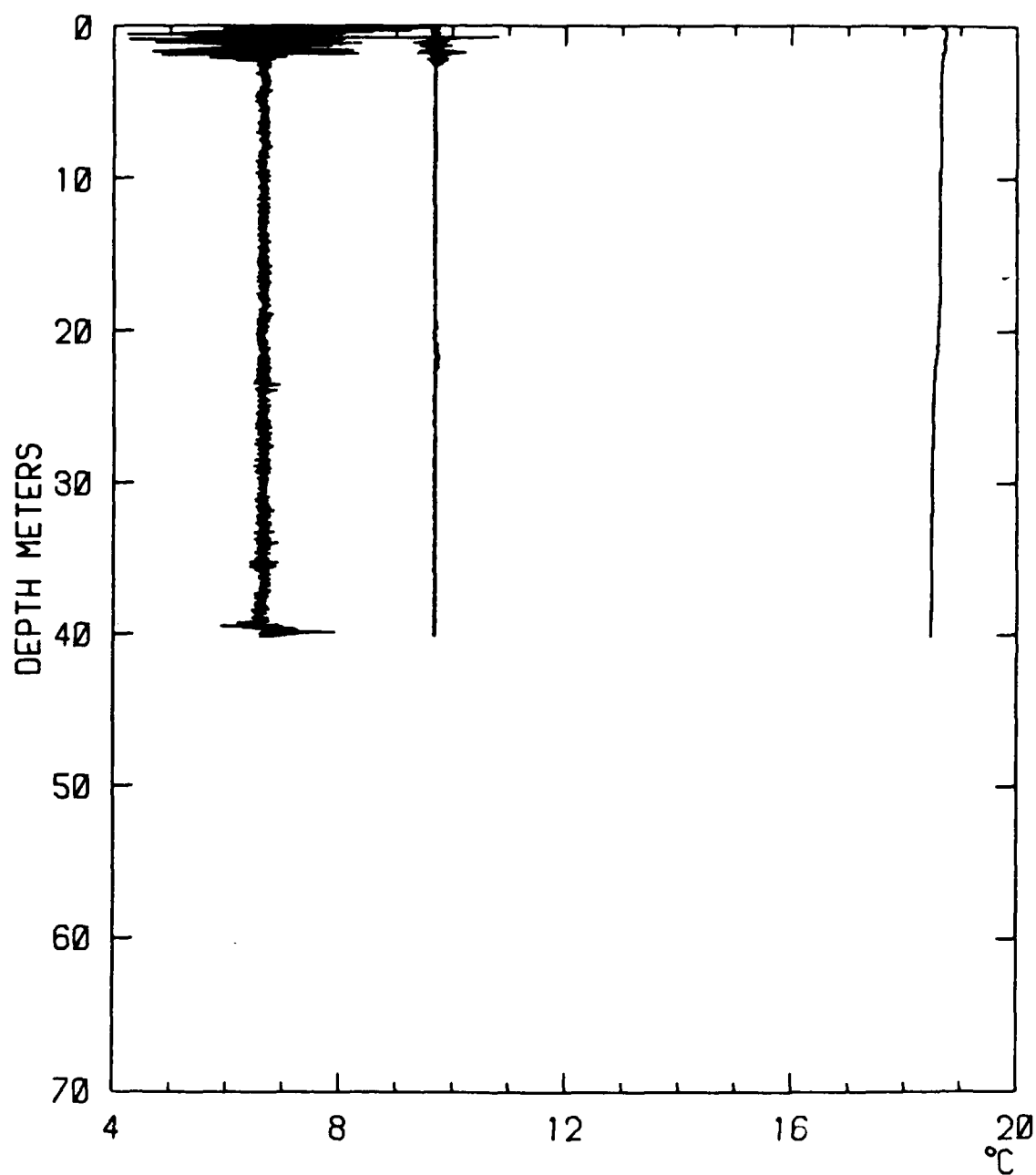
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26-OCT-83 21:45

TAPE 16
FILE 16

26-OCT-83 21:55

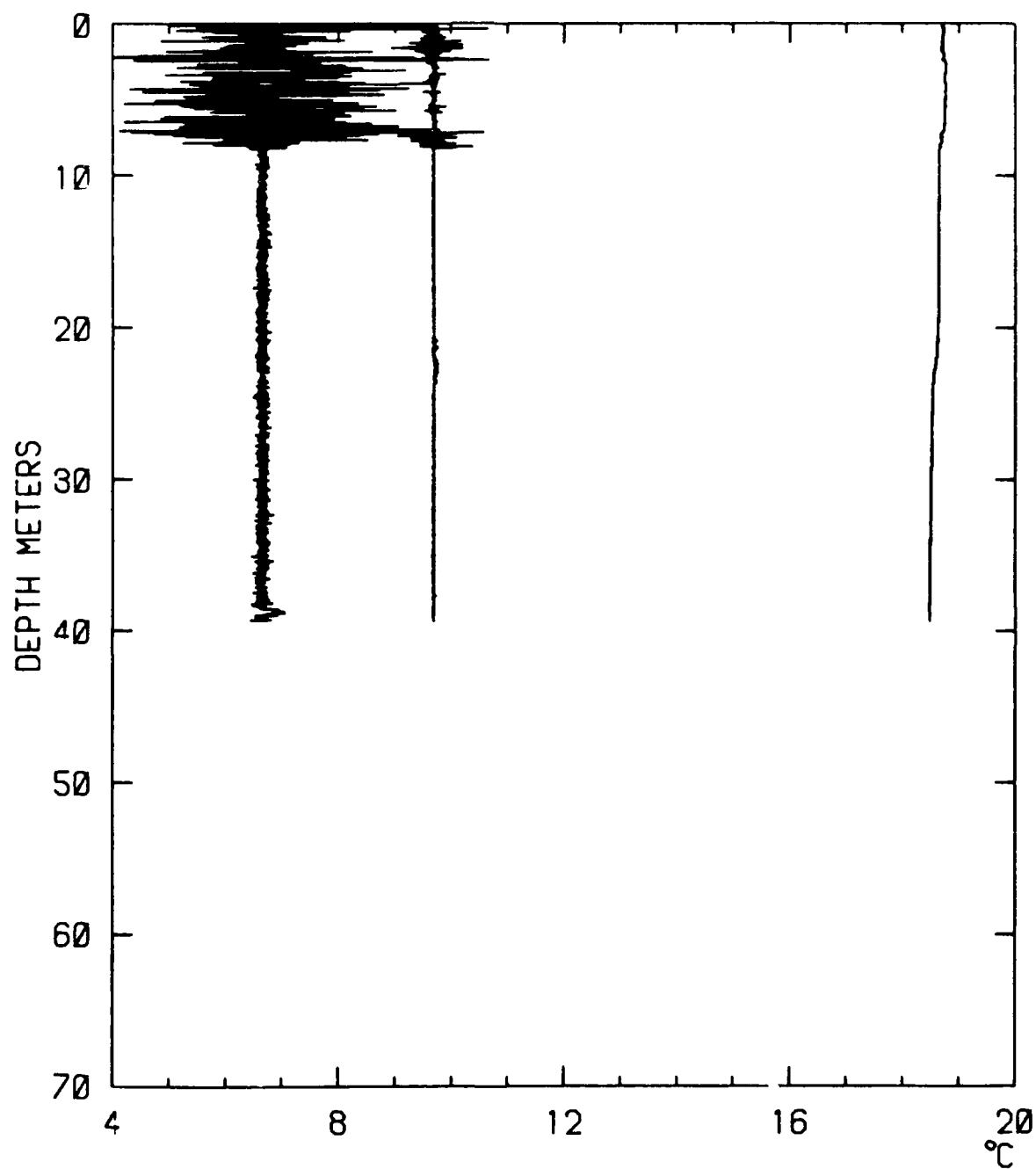
TAPE 16
FILE 17



.04 1/SEC .03 °C/CM

26-OCT-83 22:00

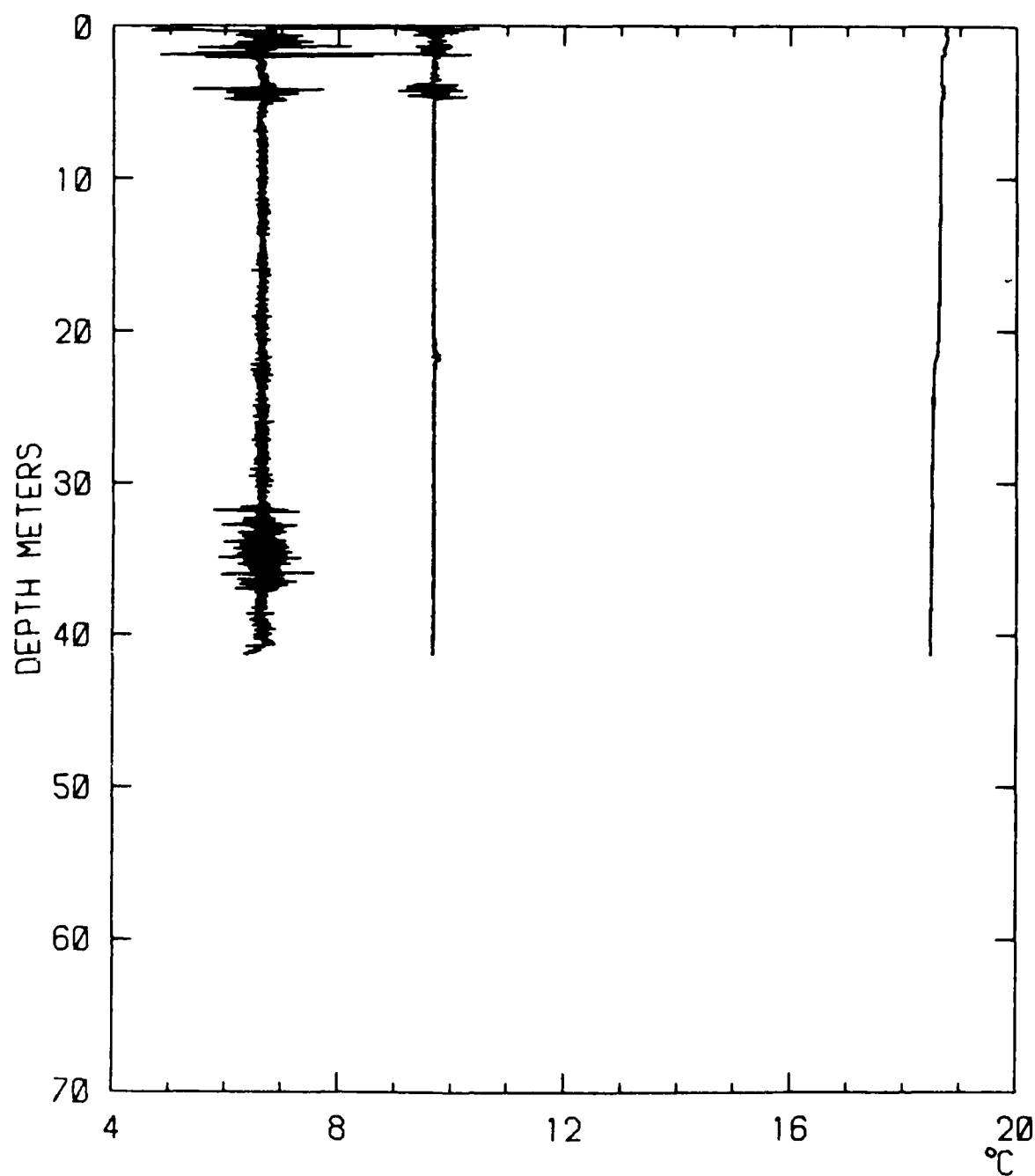
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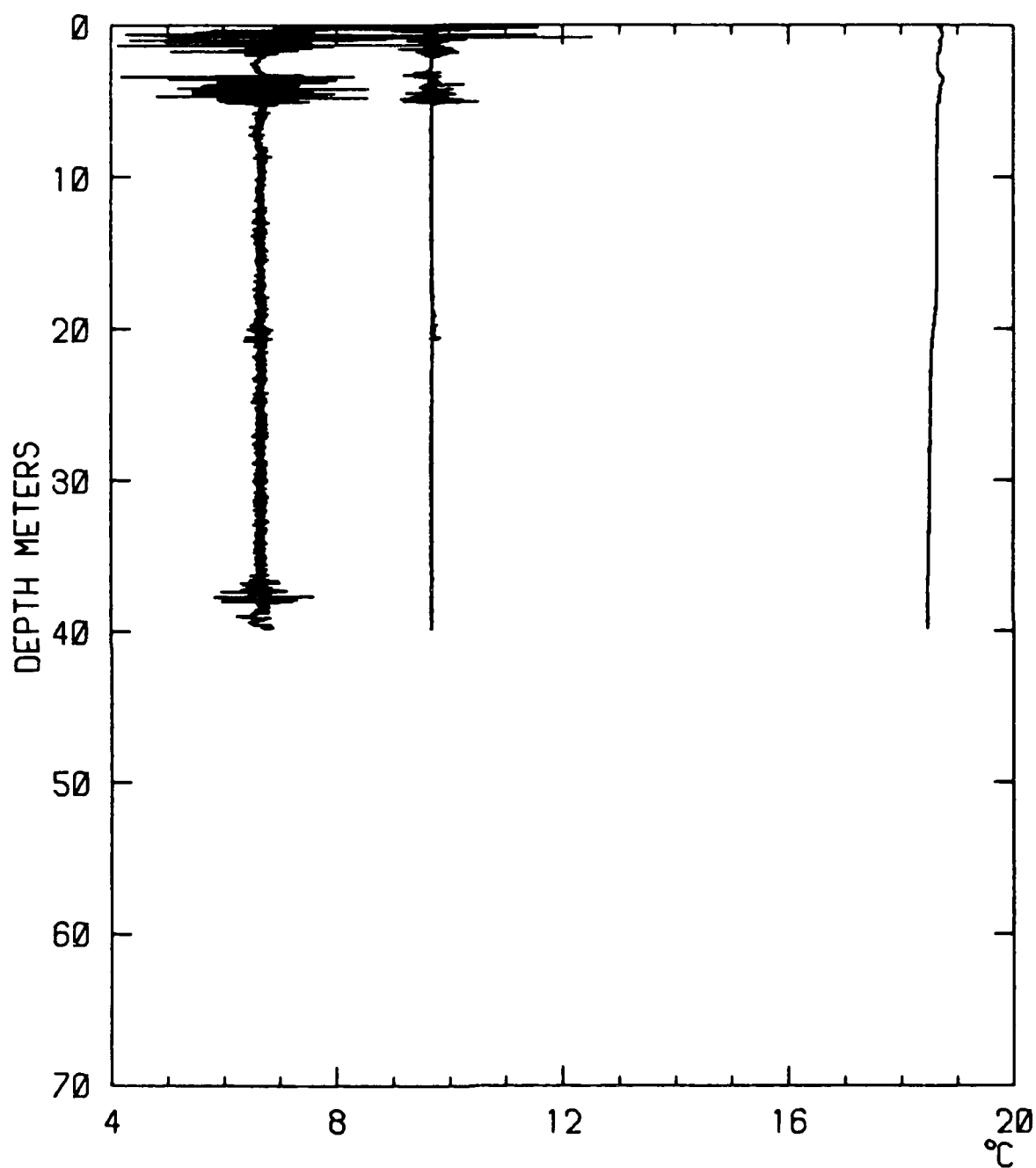
26-OCT-83 22:05

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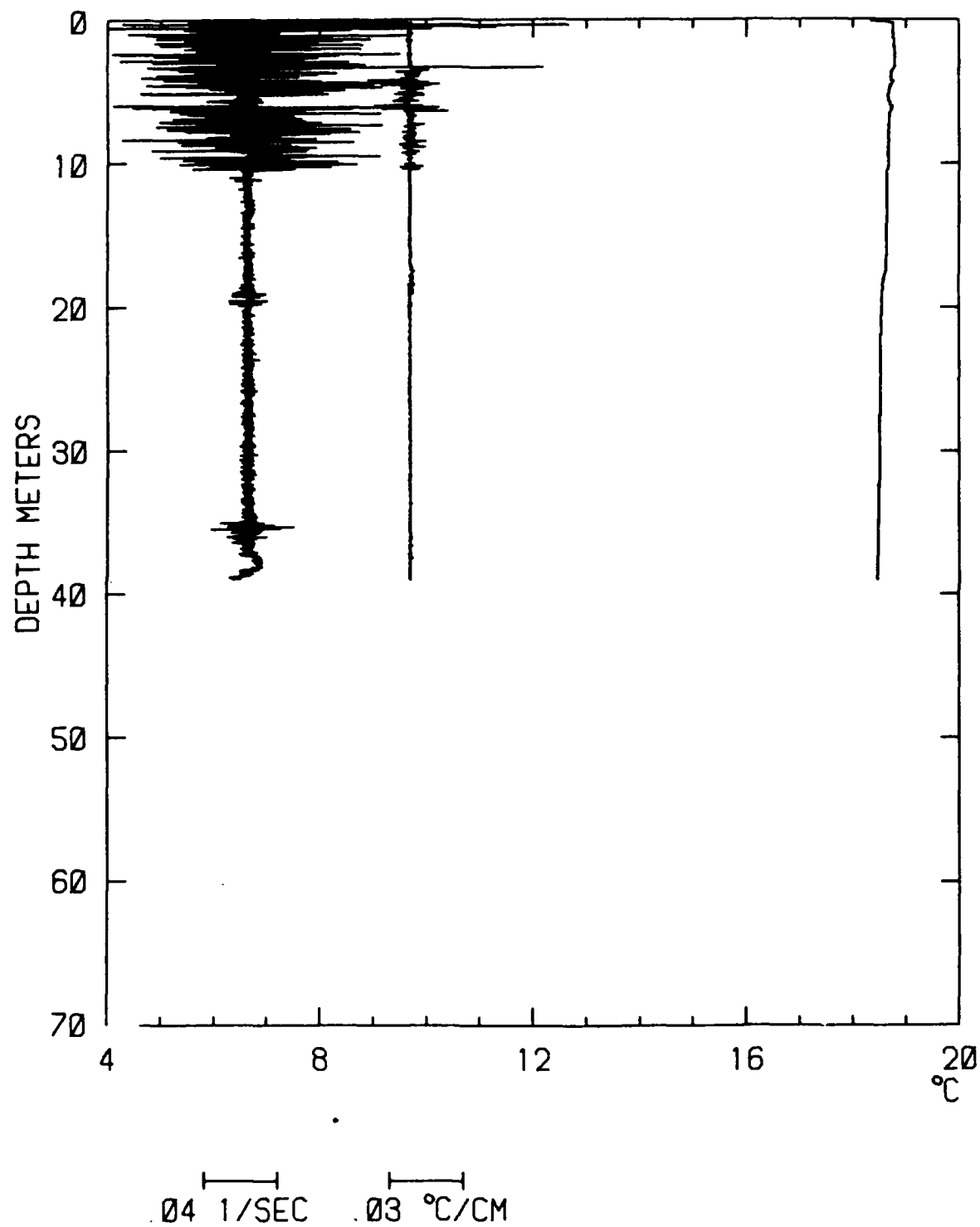
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26-OCT-83 22:13

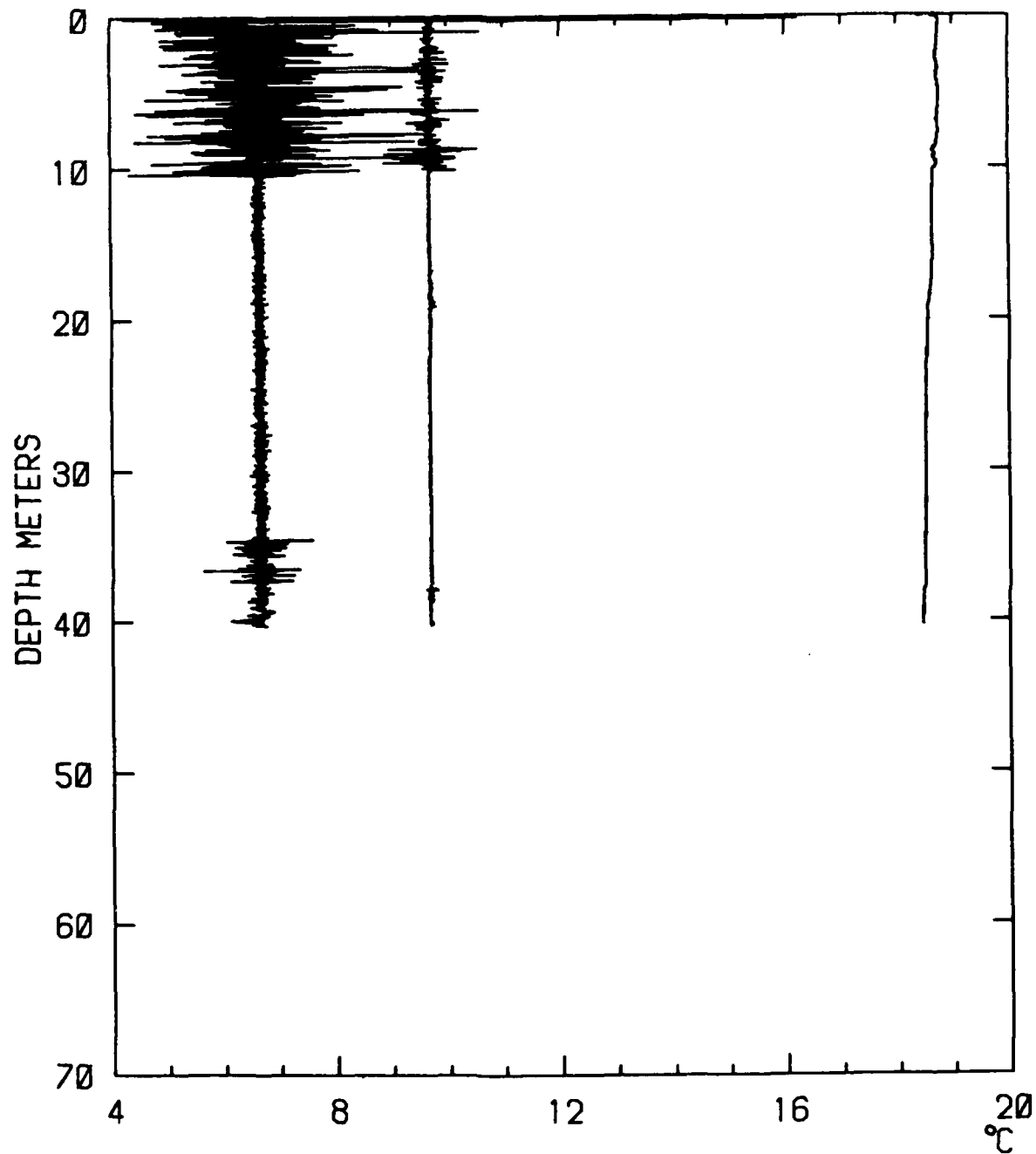
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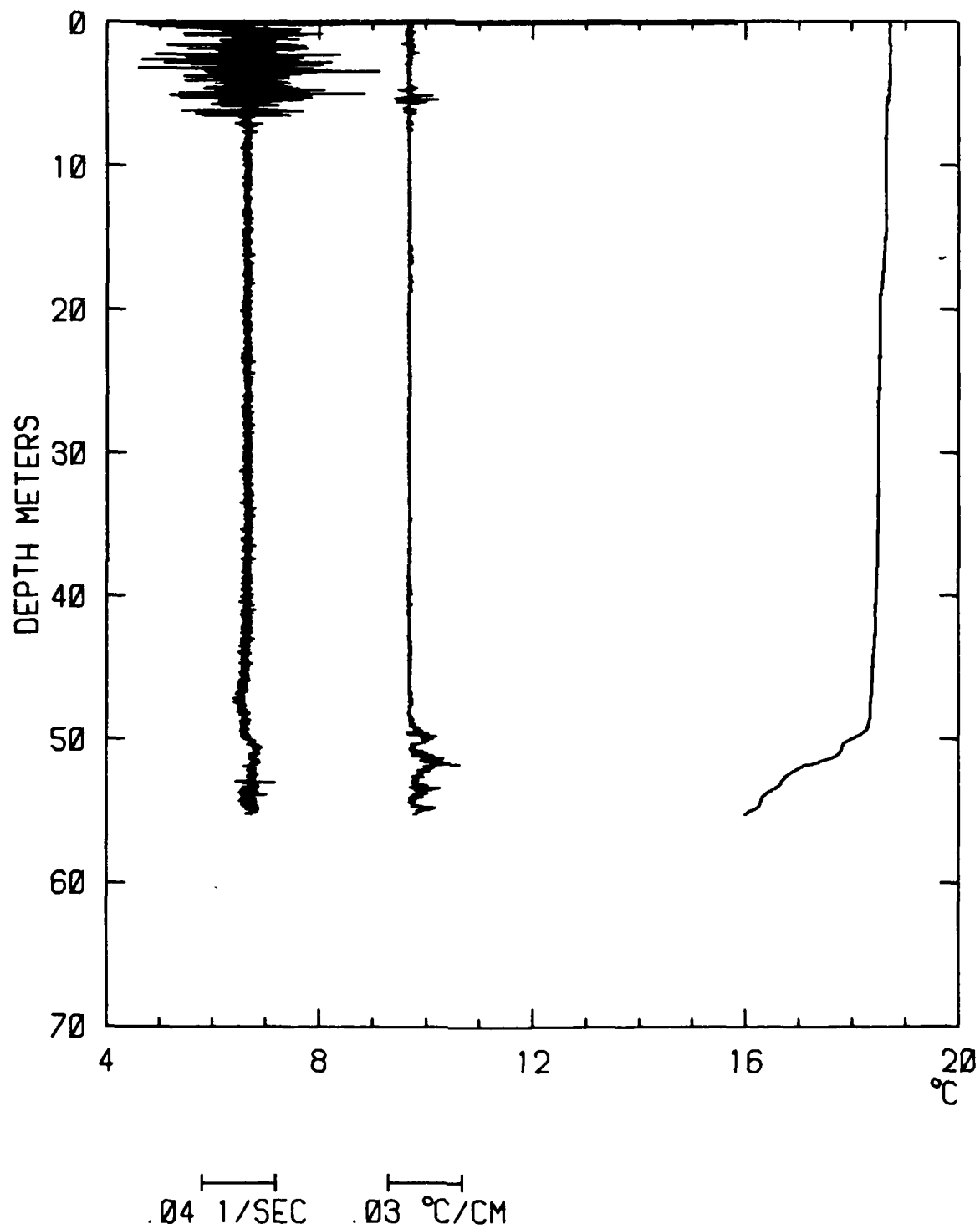
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FILE 1

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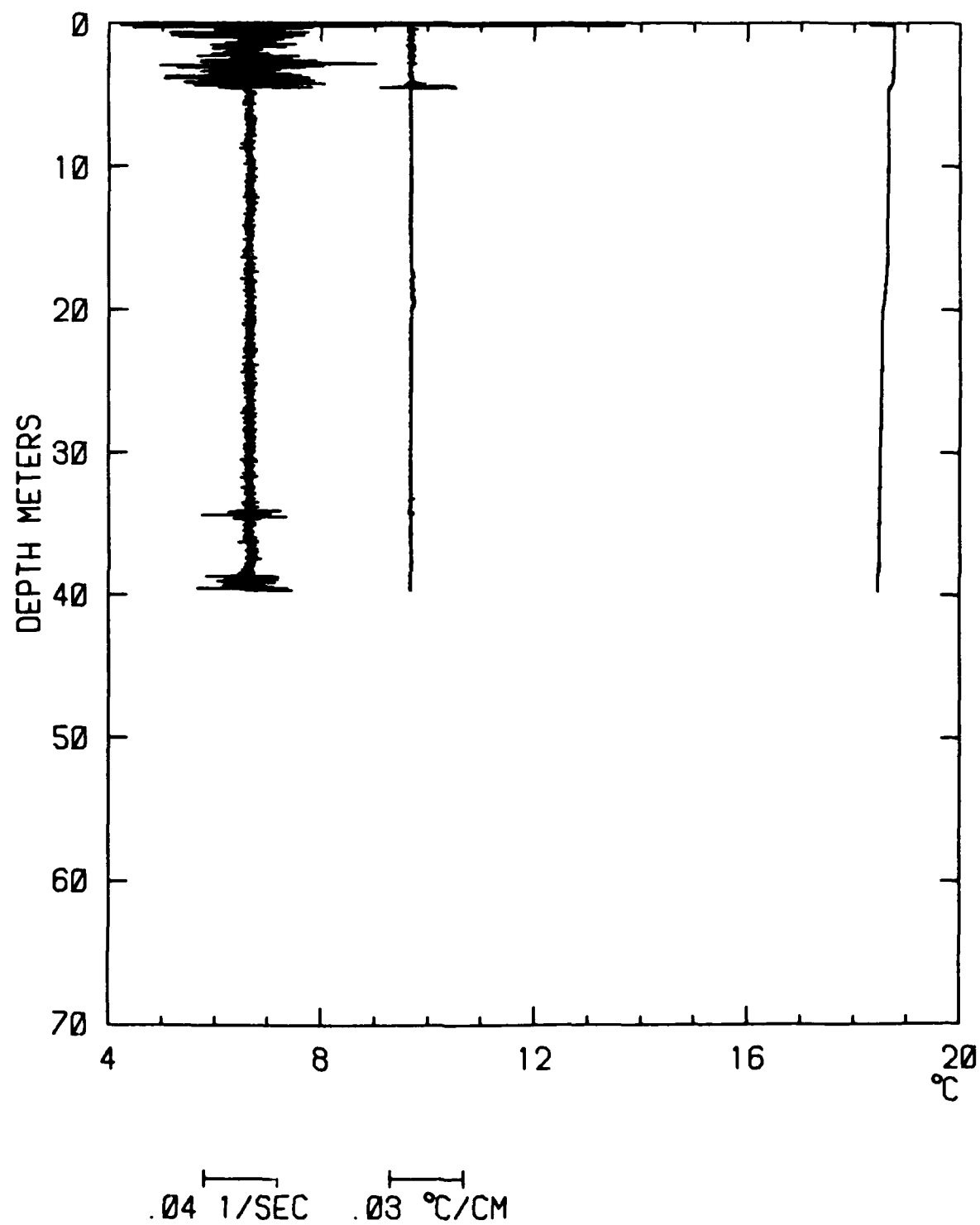
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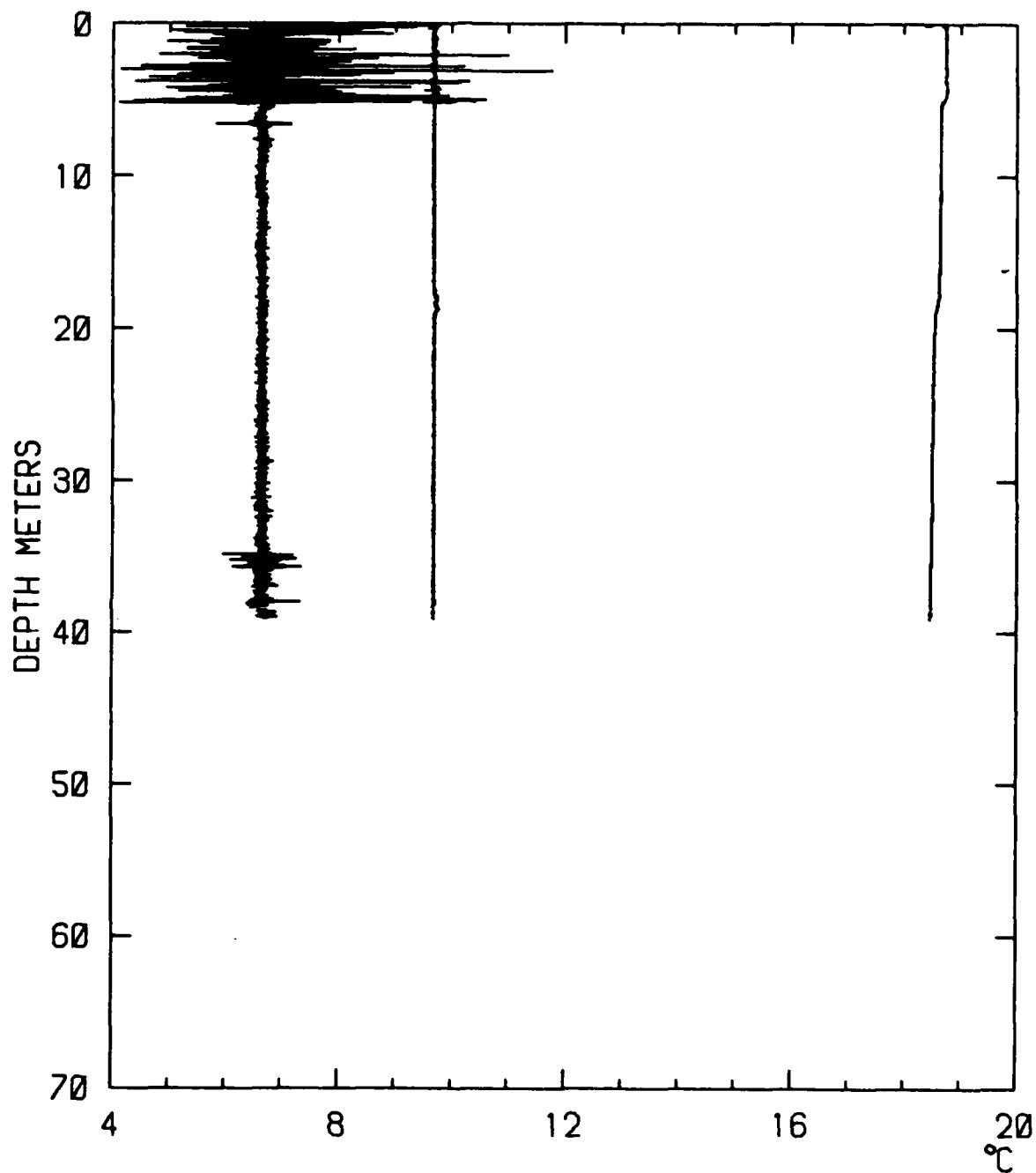
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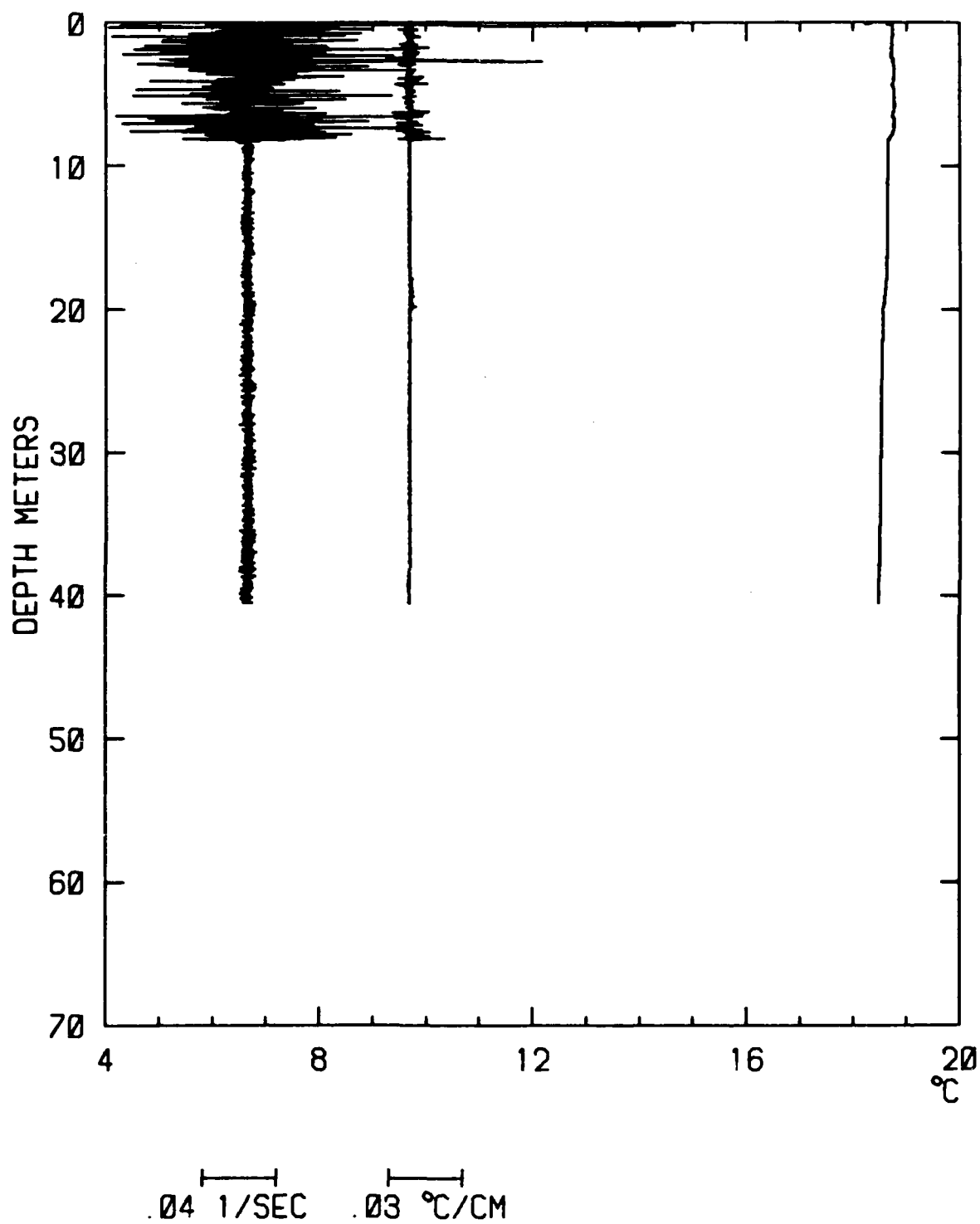
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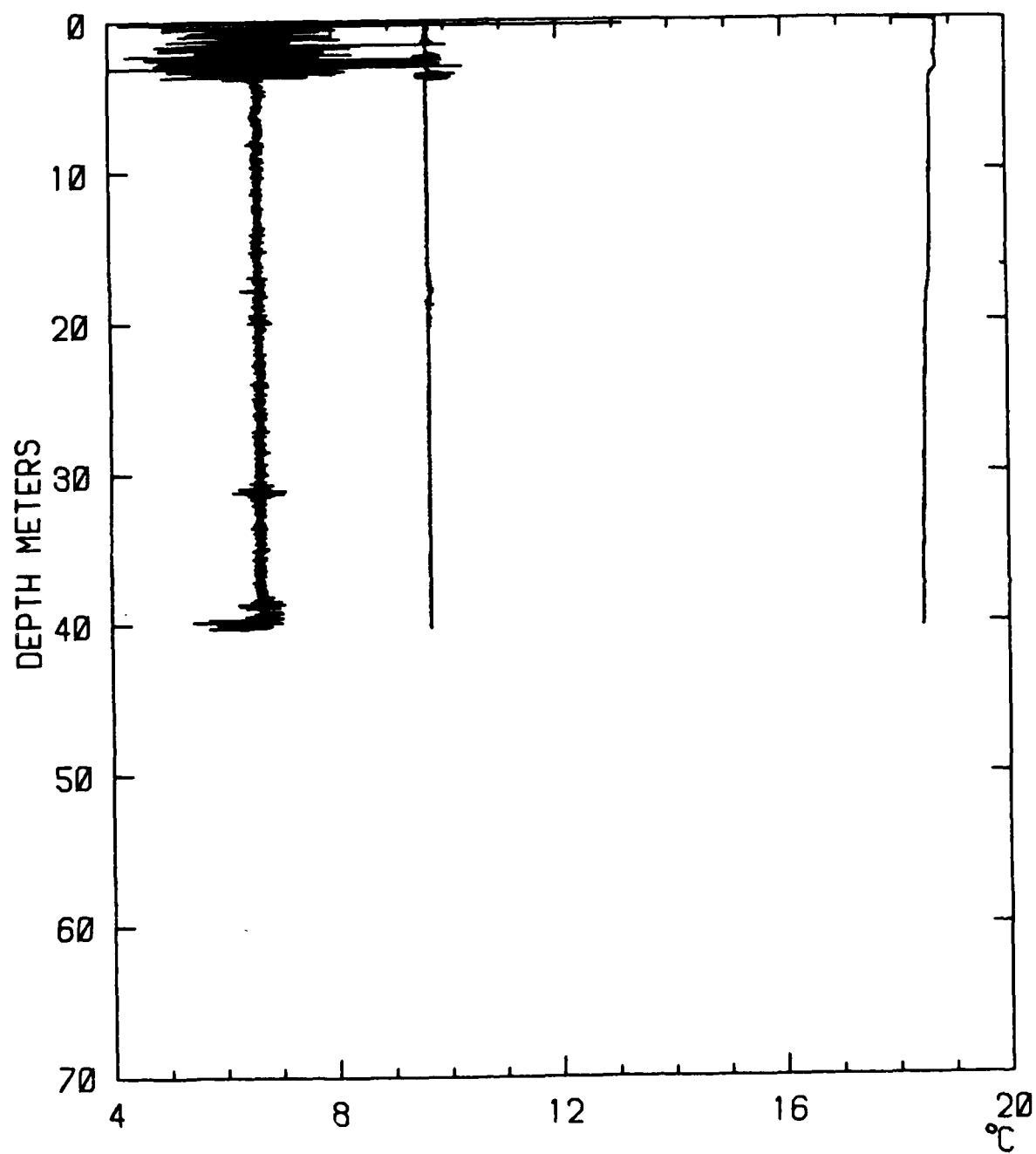
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FILE 5

26-OCT-83 22:55

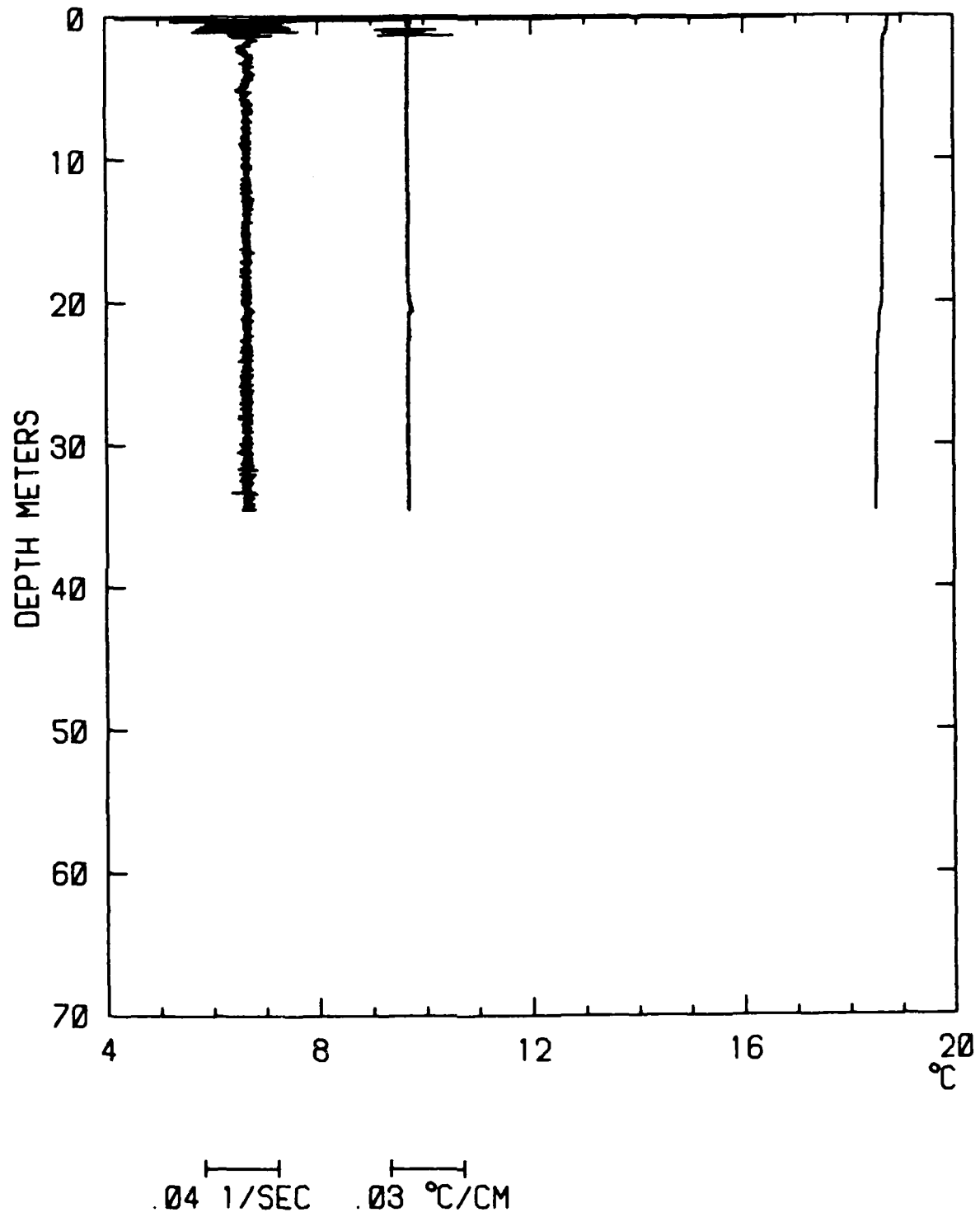
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FILE 6

26-OCT-83 23:00

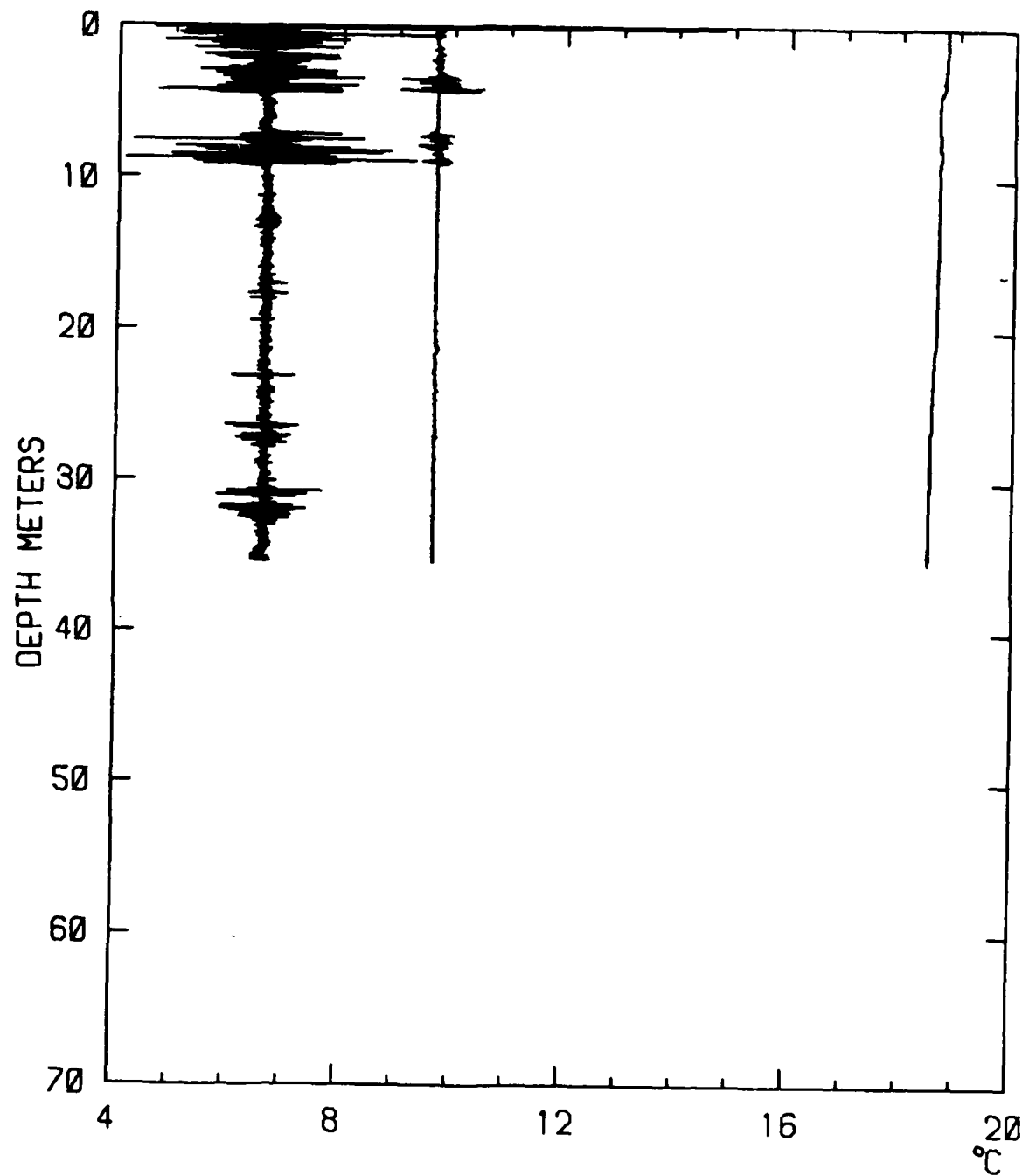
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FILE 7

.04 1/SEC .03 °C/CM

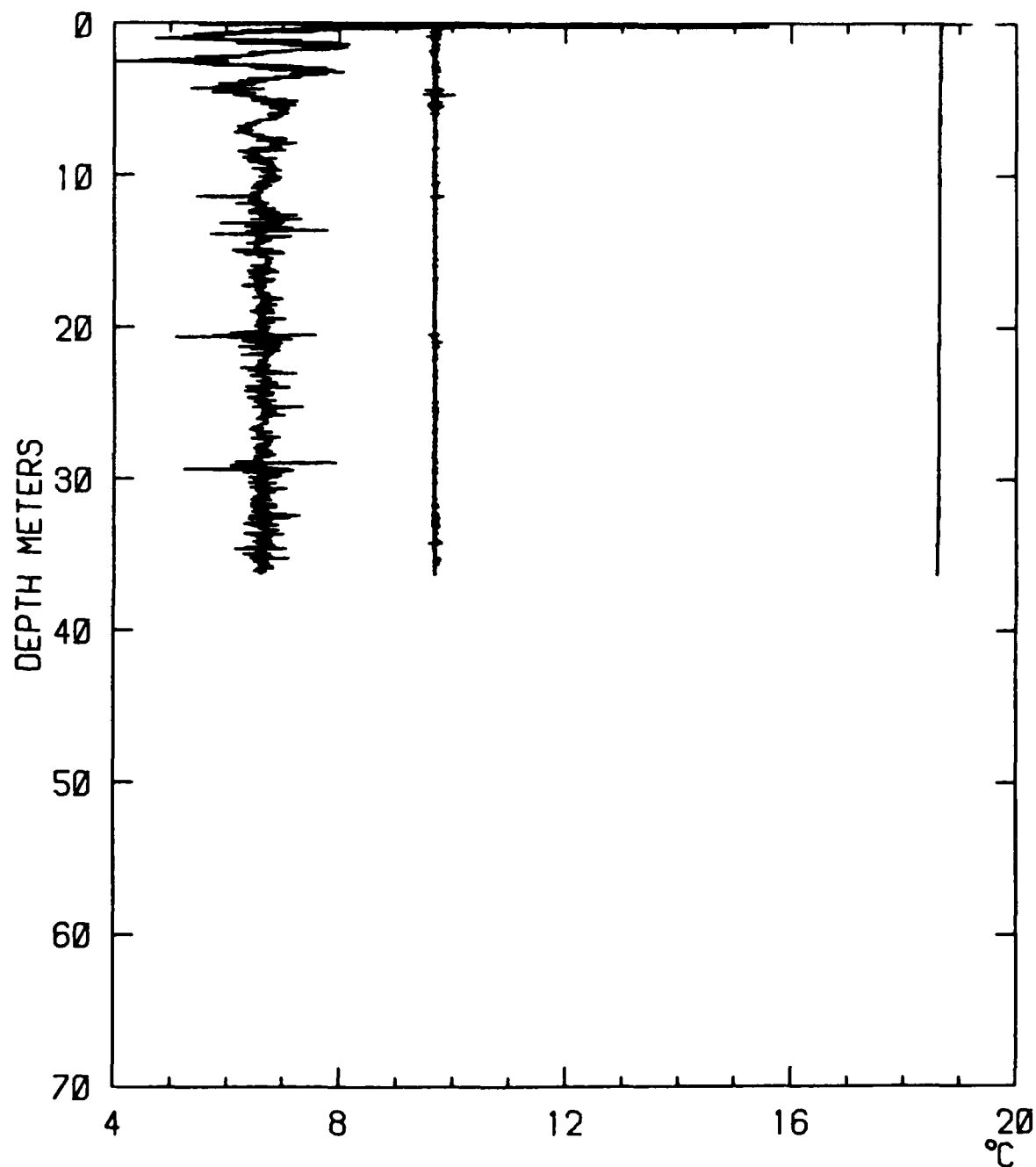
26-OCT-83 23:17

TAPE 17
FILE 9

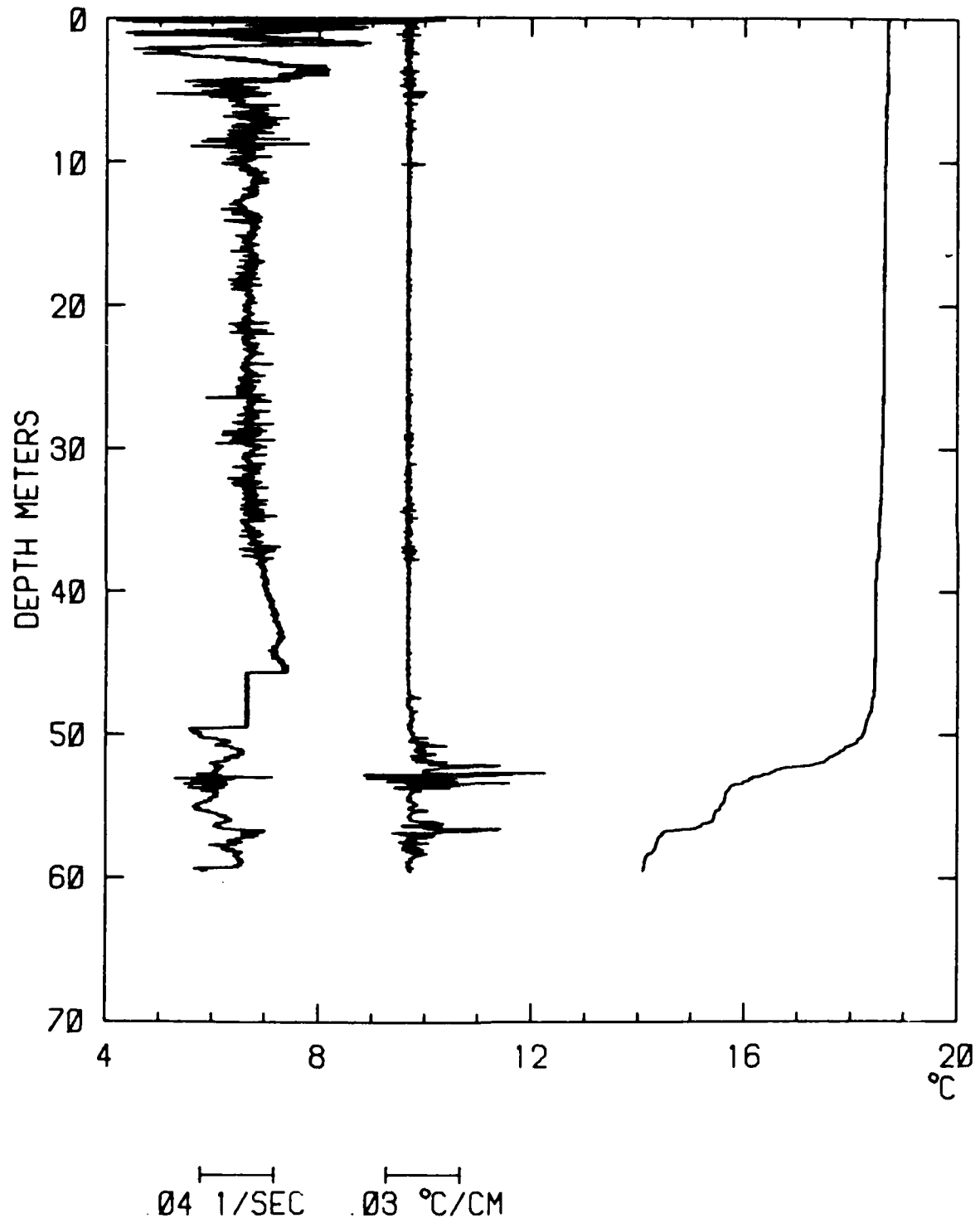
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FILE 10

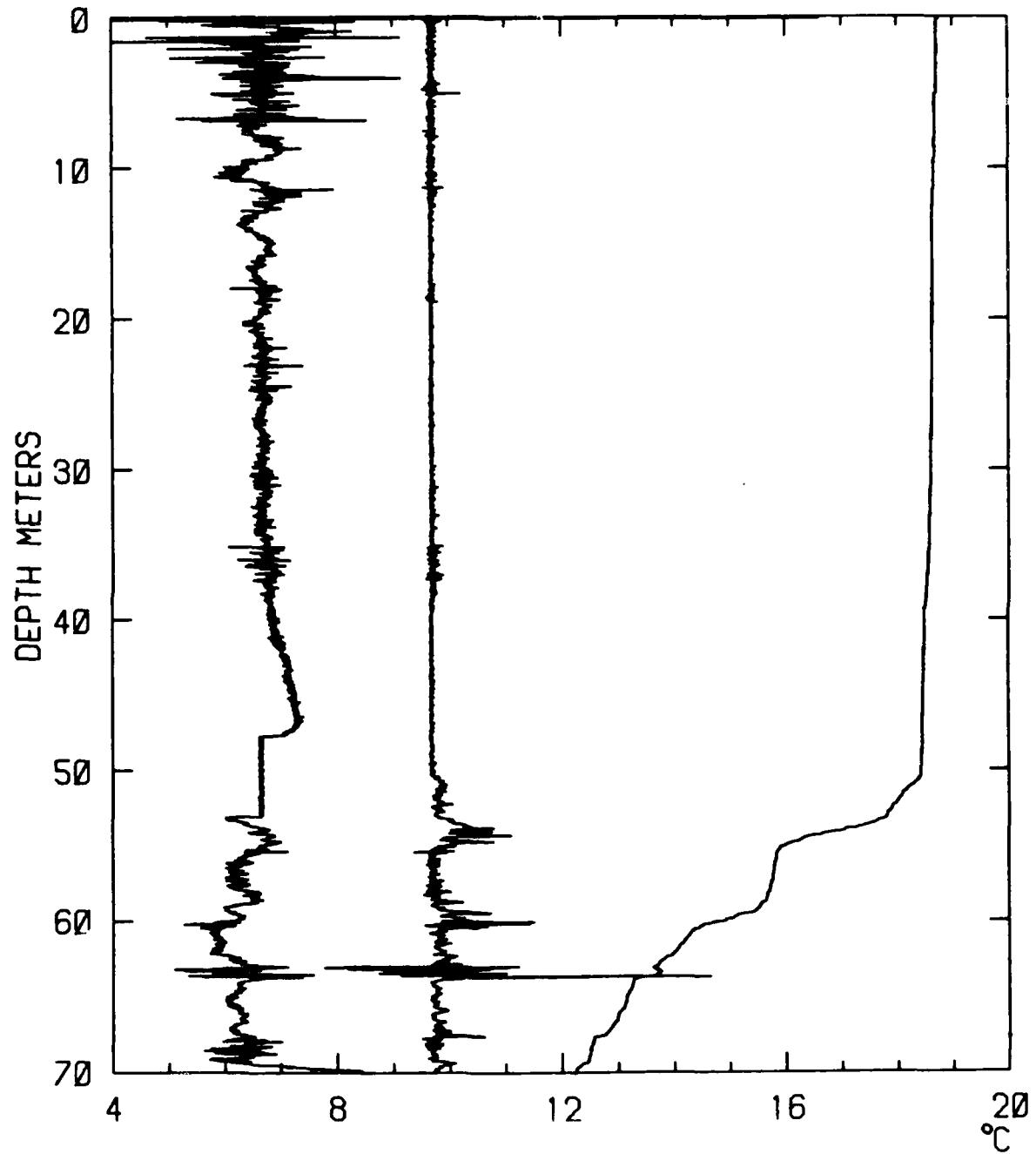
29-OCT-83 18:11

TAPE 30
FILE 1

29-OCT-83 18:36

TAPE 30
FILE 2

29-OCT-83 19:00

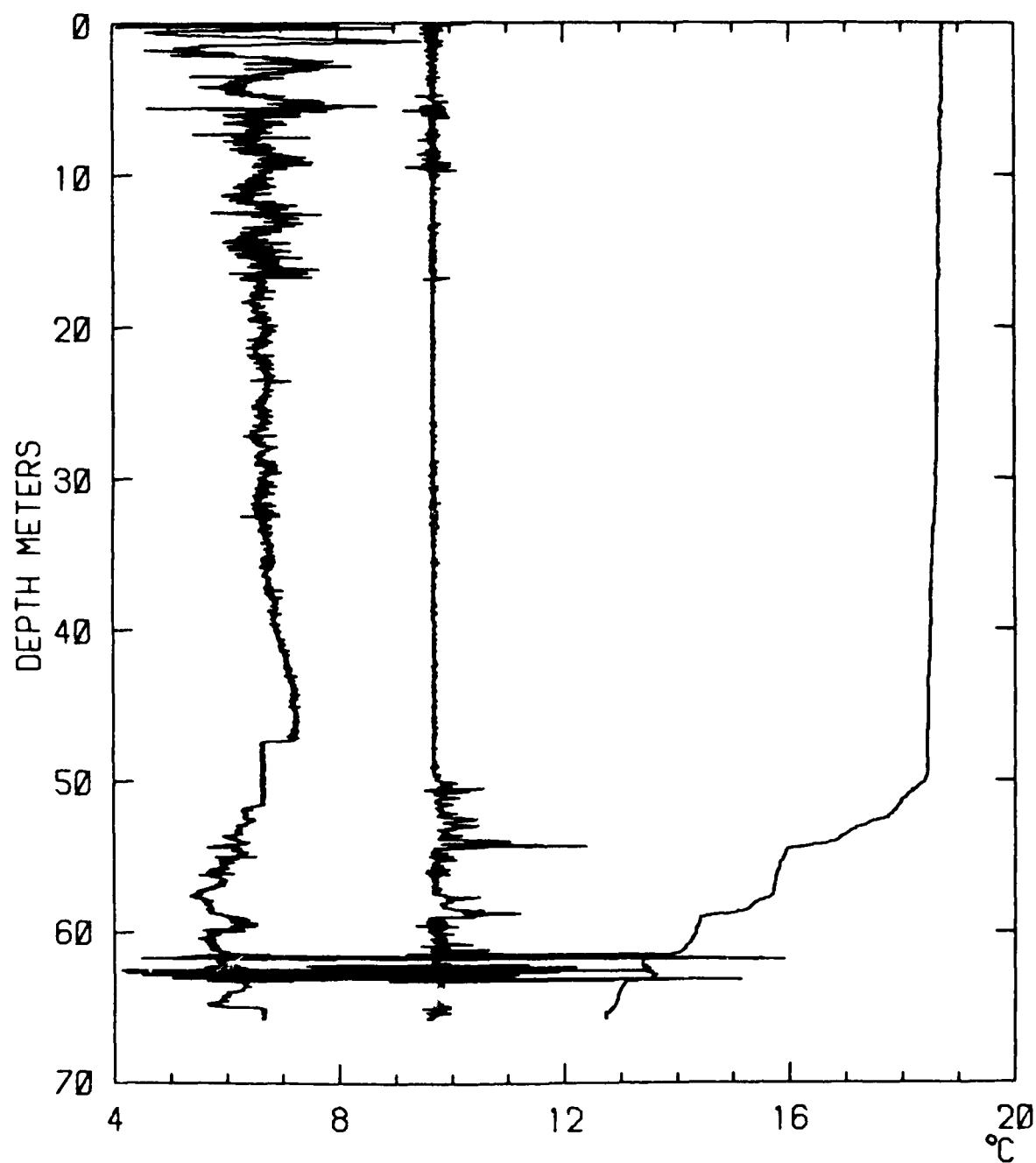
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04 1/SEC .03 °C/CM

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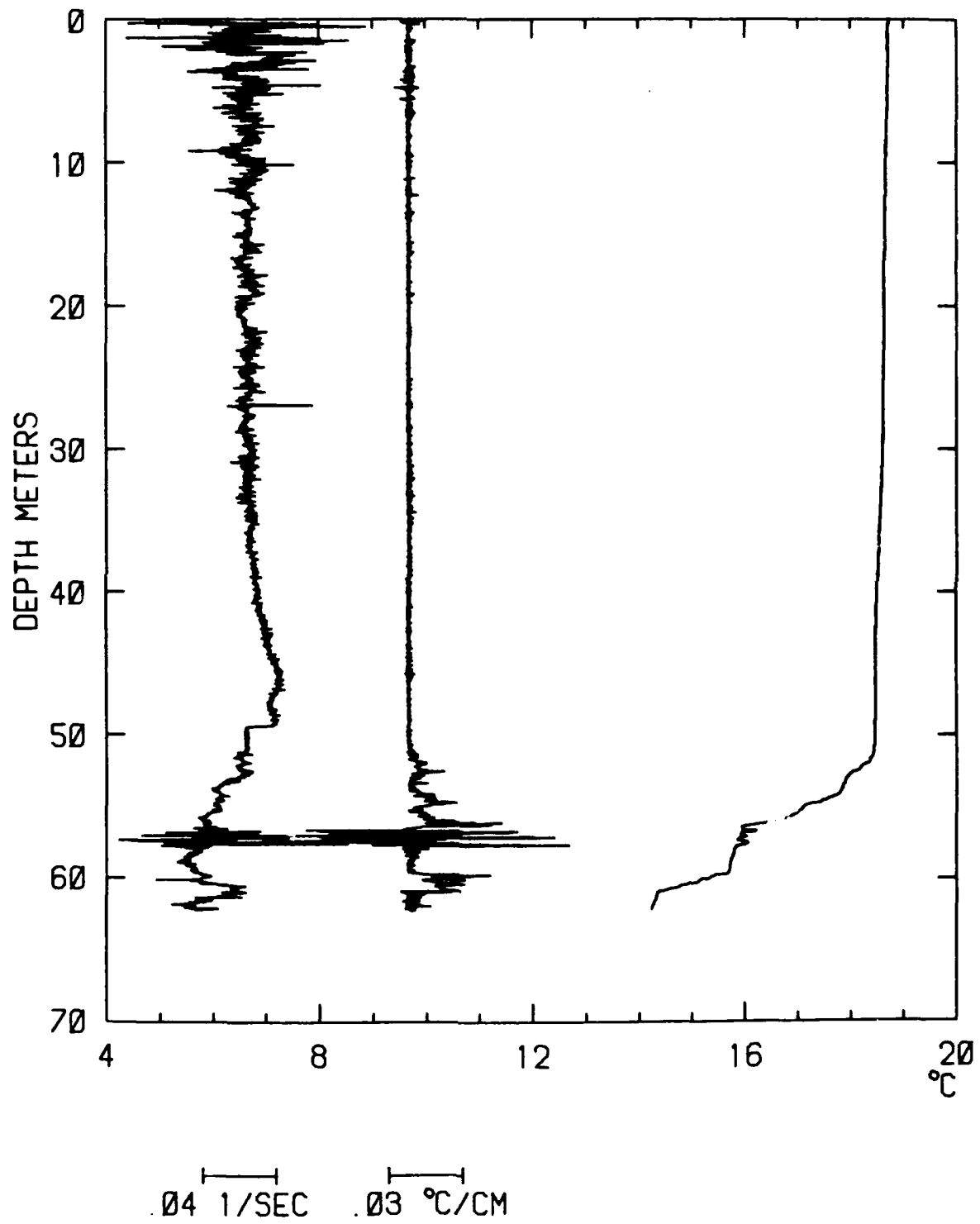
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TAPE 30
FILE 4



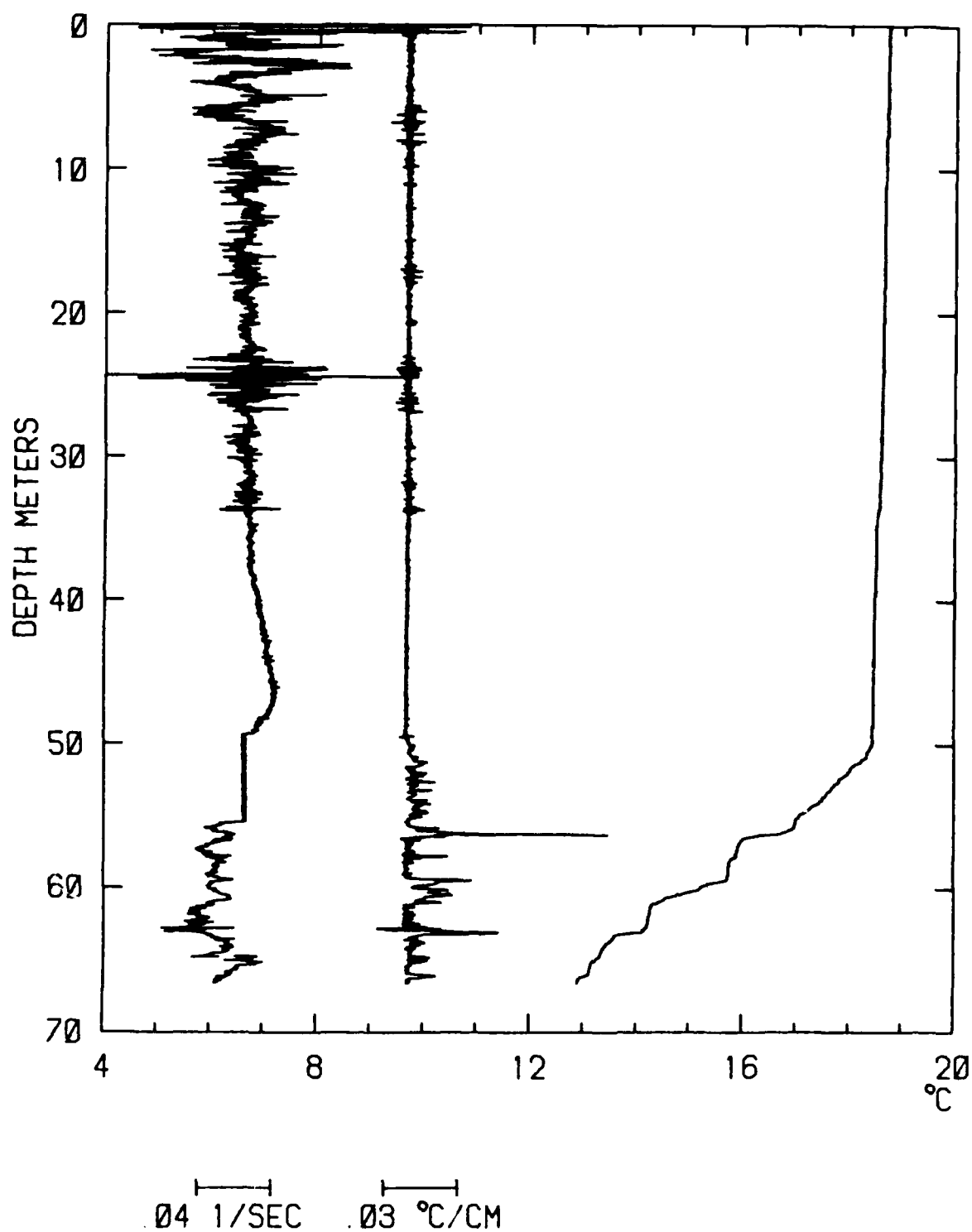
04 1/SEC 03 °C/CM

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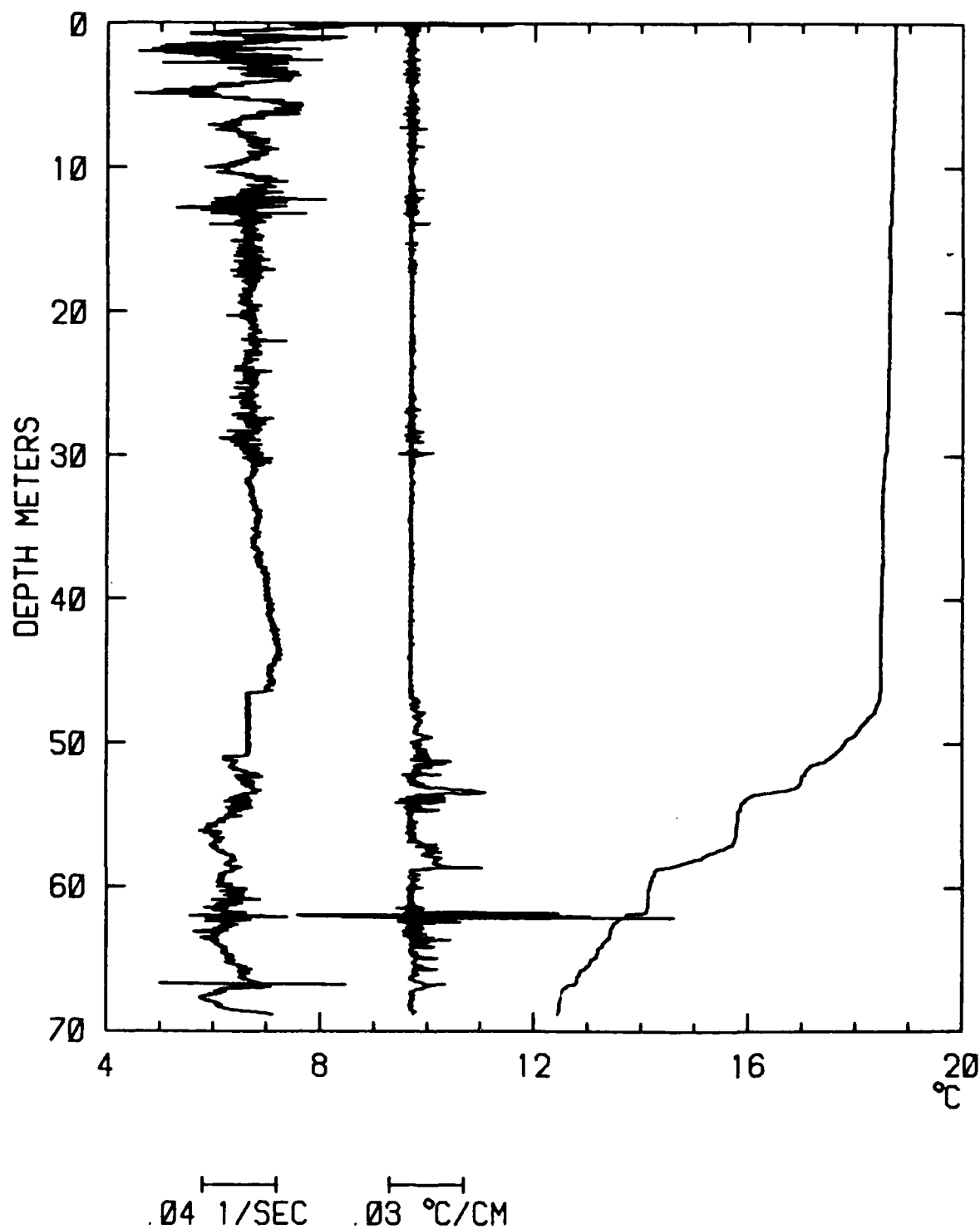
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FILE 5

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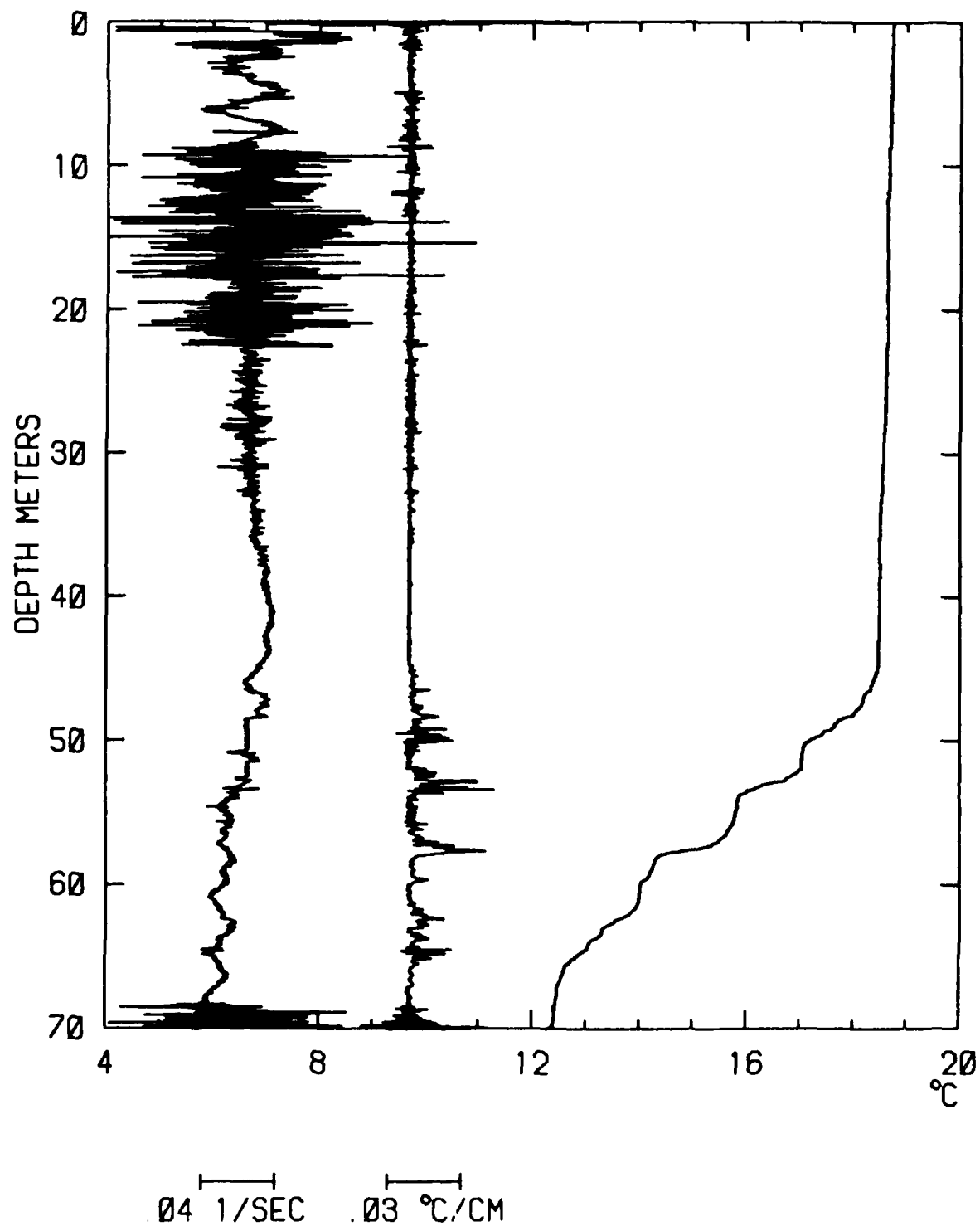
TAPE 30
FILE 6



29-OCT-83 19:34

TAPE 30
FILE 7

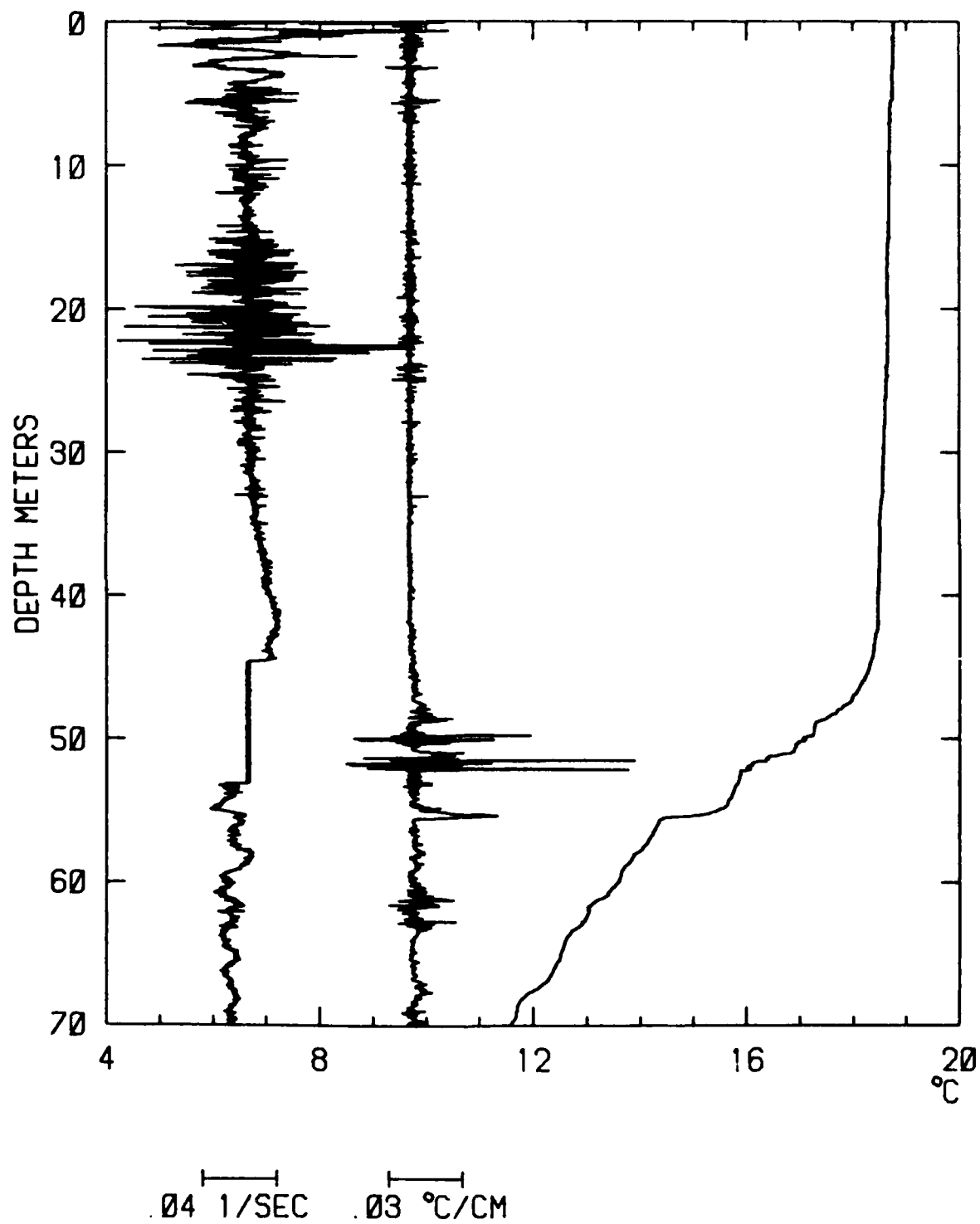
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FILE 8

29-OCT-83 19:49

TAPE 30

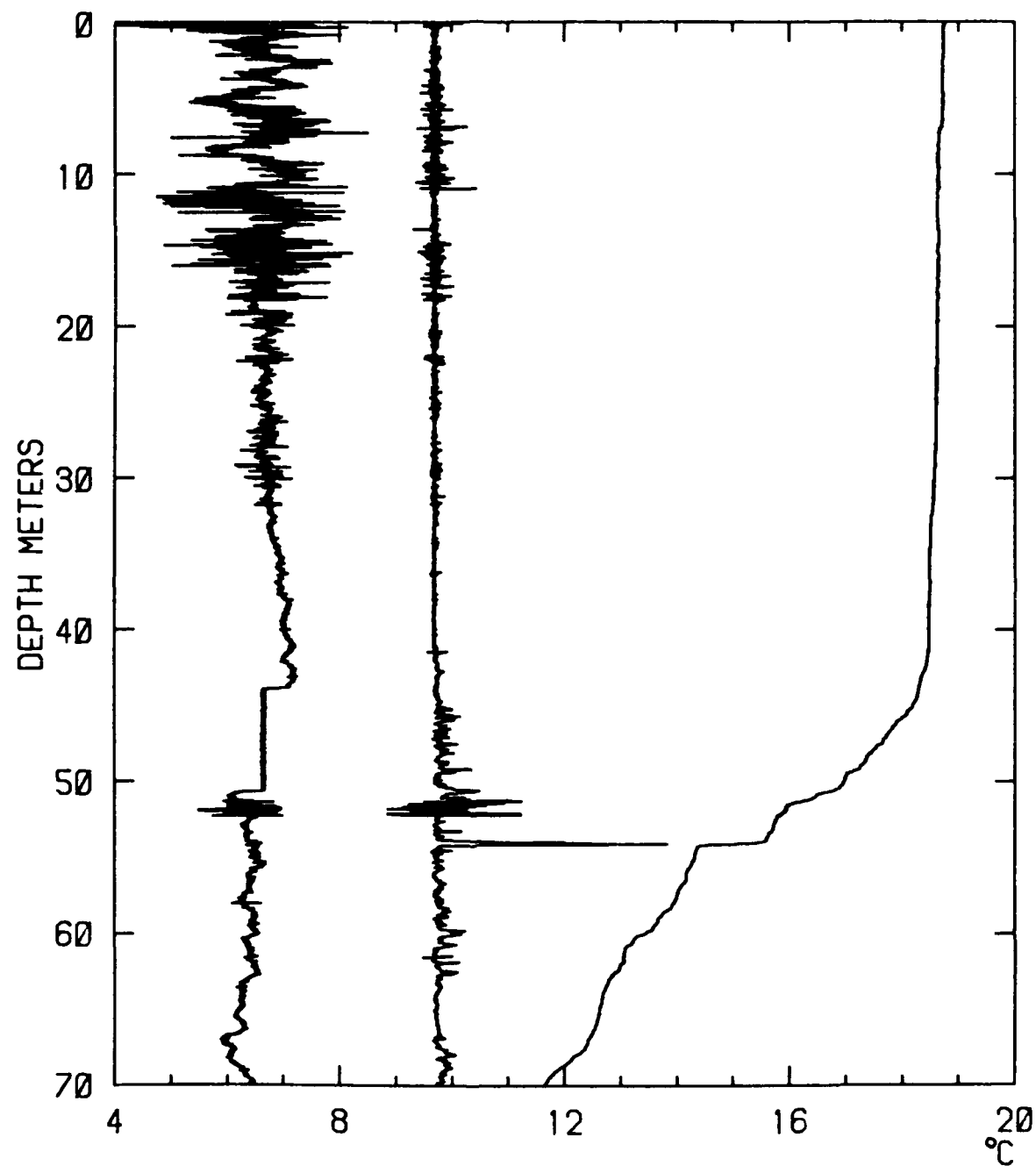
FILE 9



29-OCT-83 19:56

TAPE 30

FILE 10

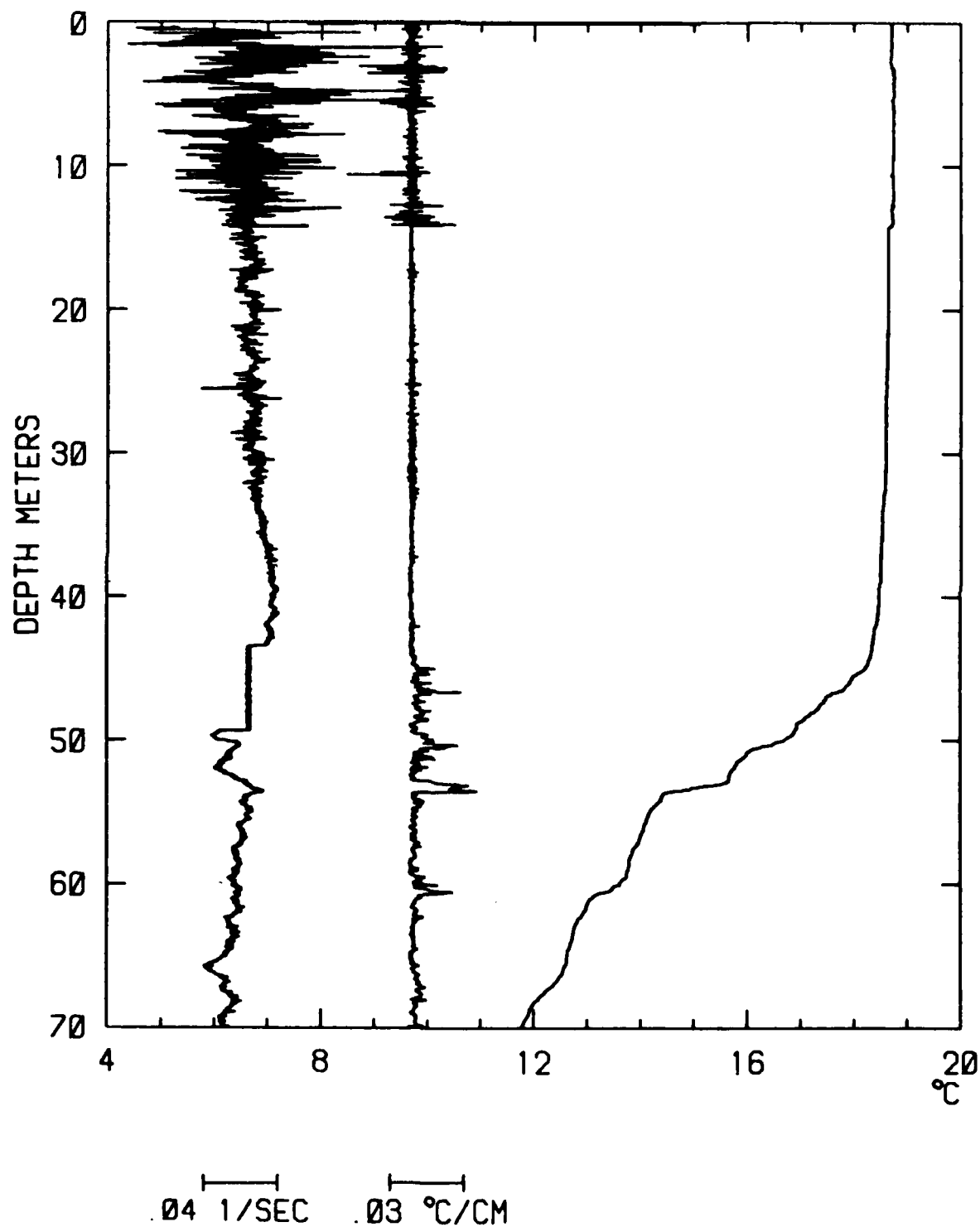


04 1/SEC 03 °C/CM

29-OCT-83 20:04

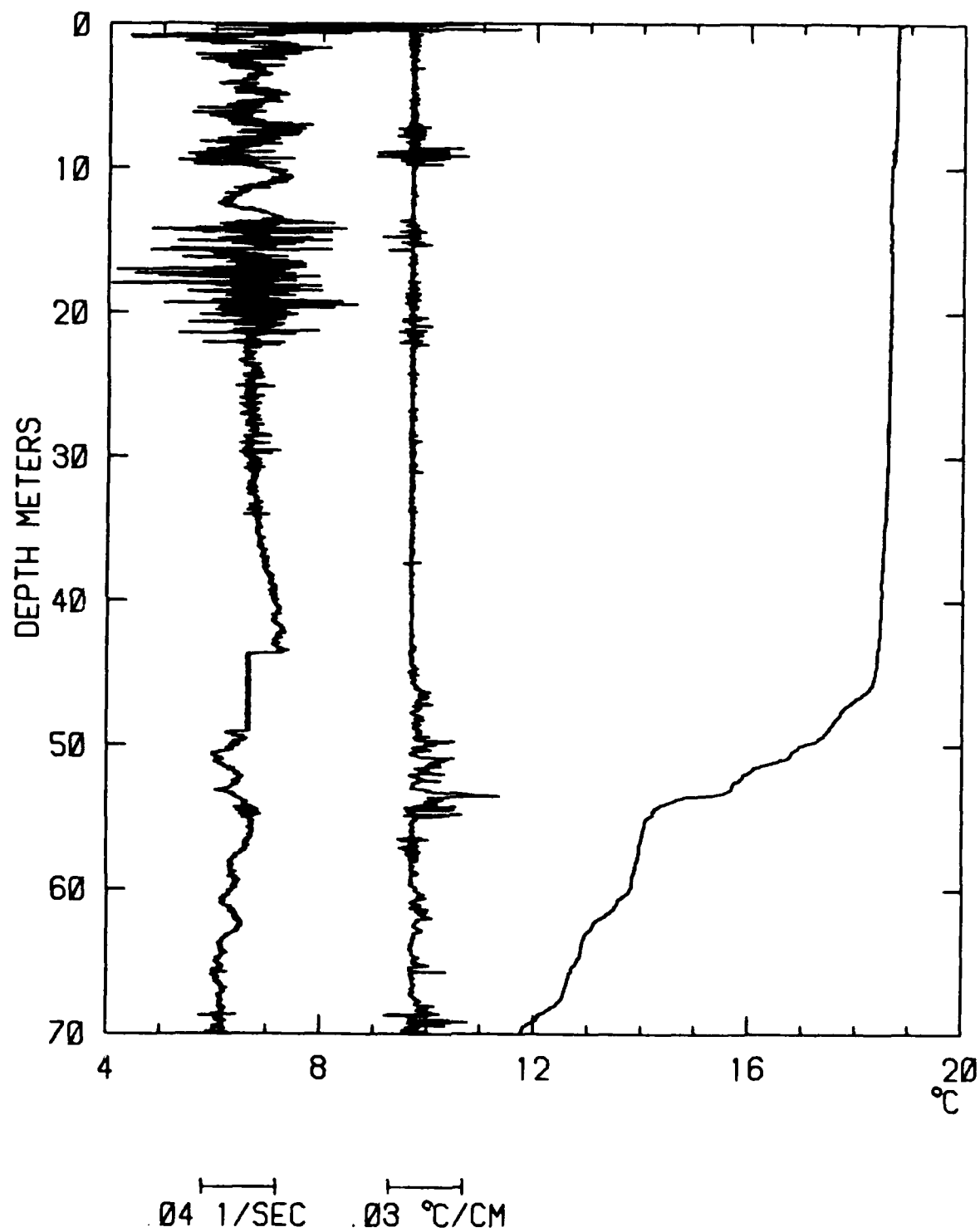
TAPE 30

FILE 11

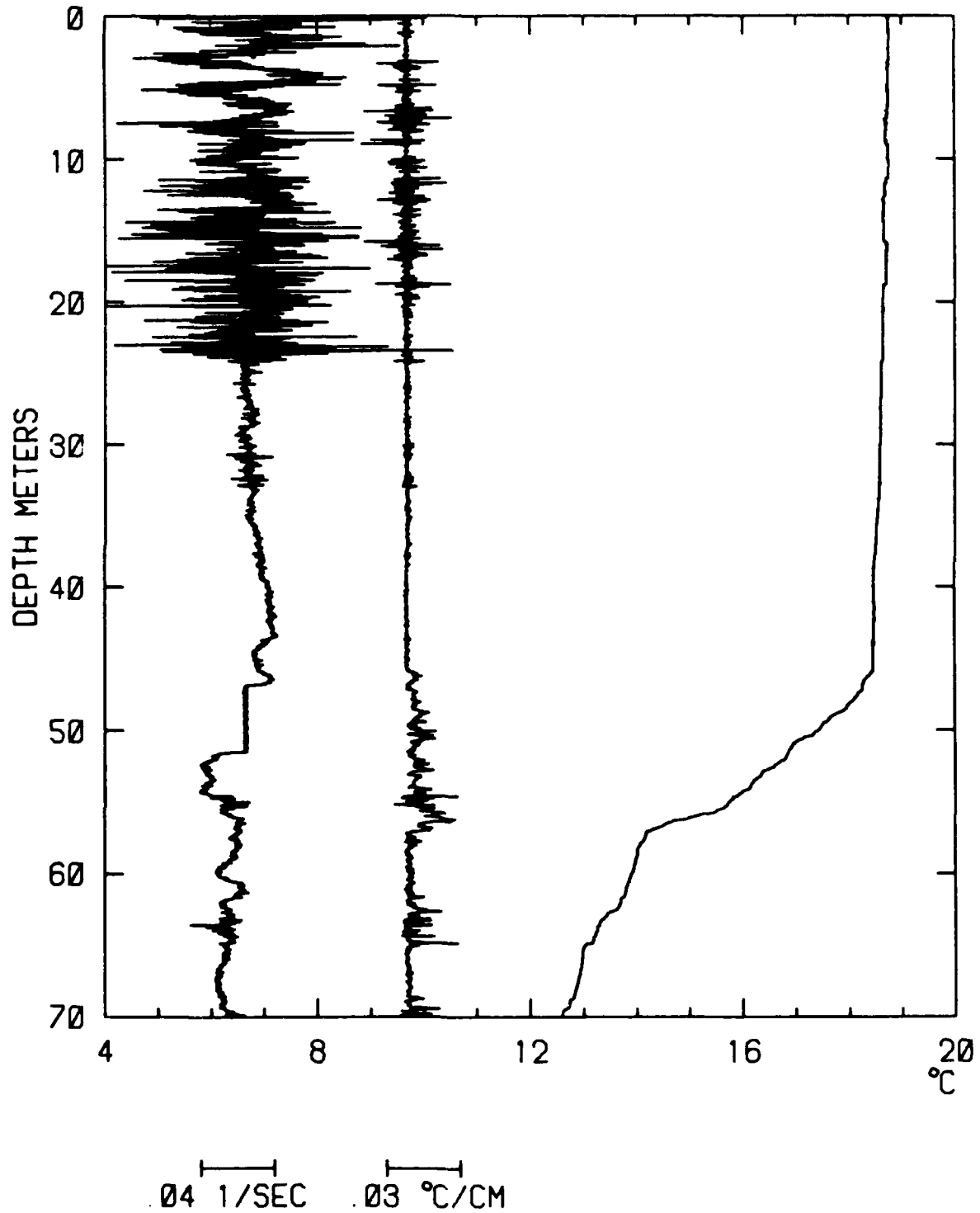


29-OCT-83 20:12

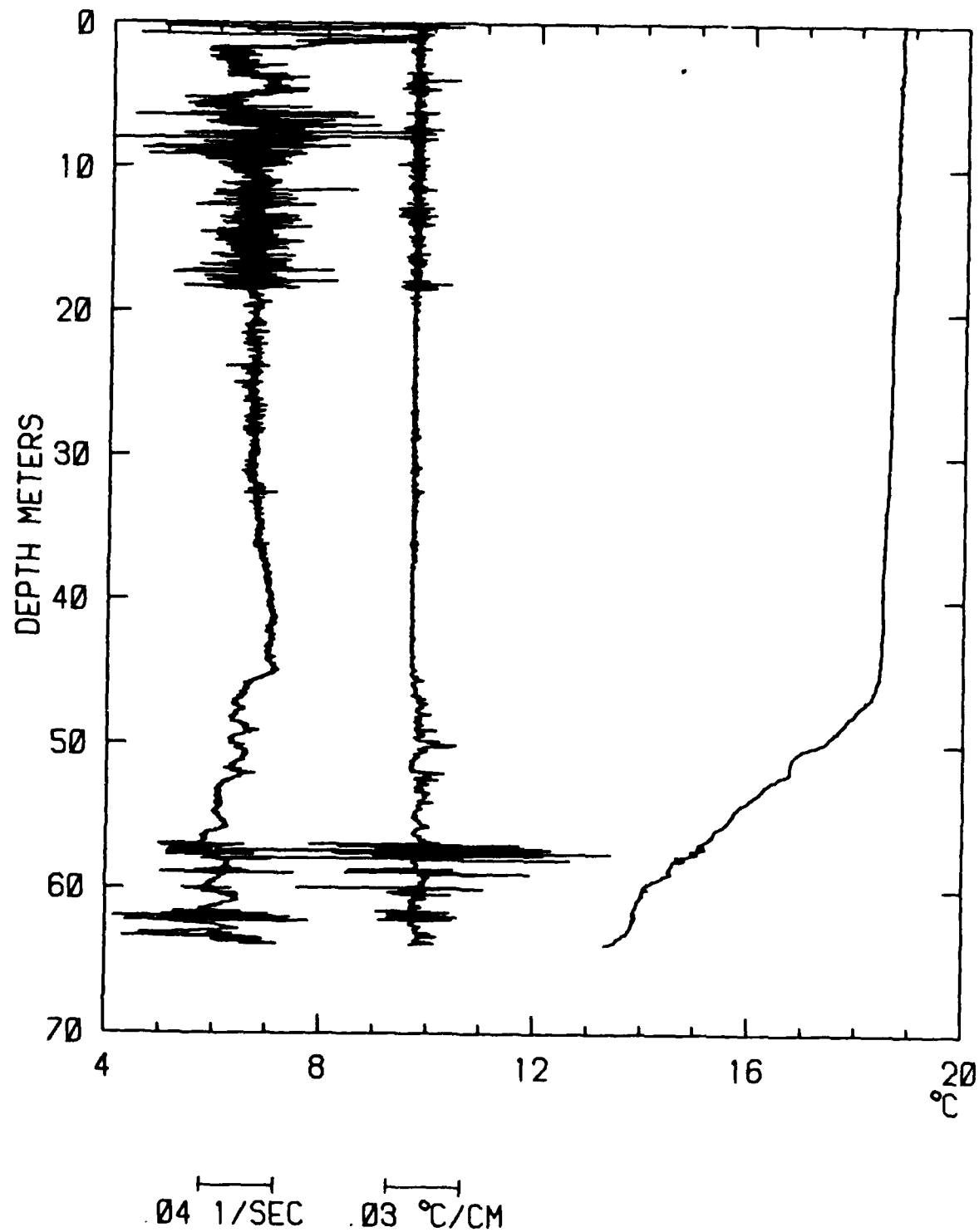
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FILE 12



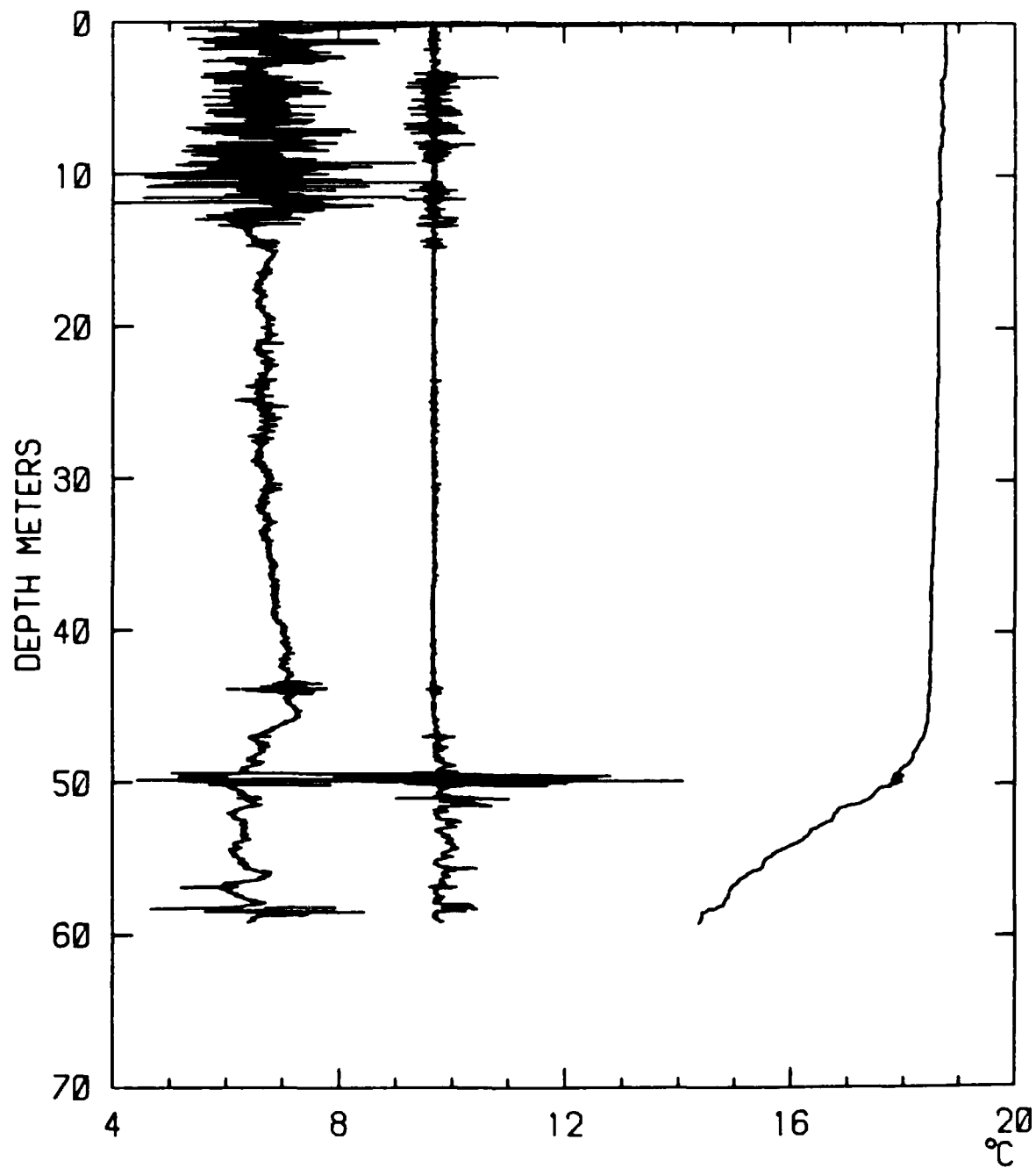
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FILE 1

29-OCT-83 20:33

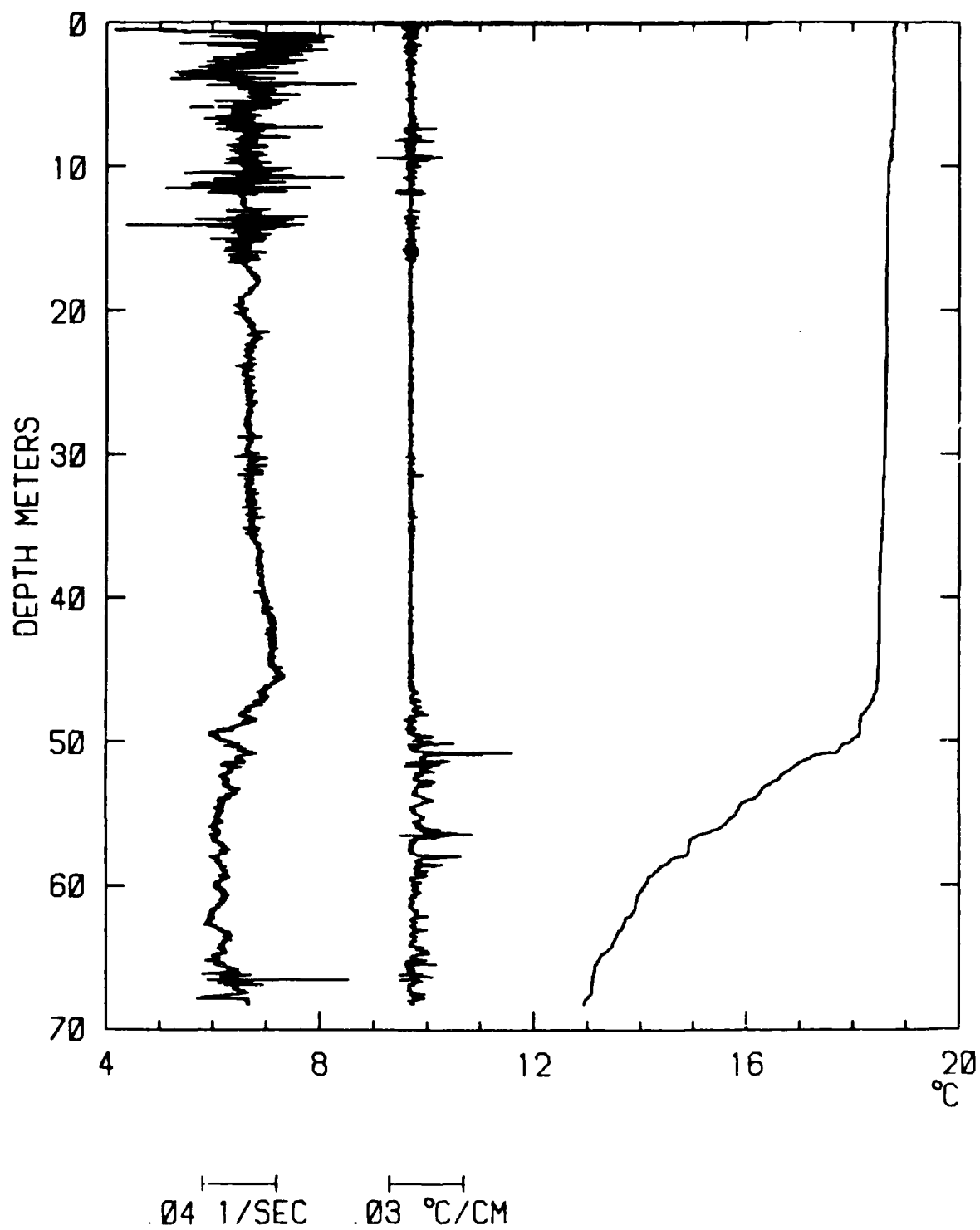
TAPE 31
FILE 2

29-OCT-83 20:38

TAPE 31
FILE 3

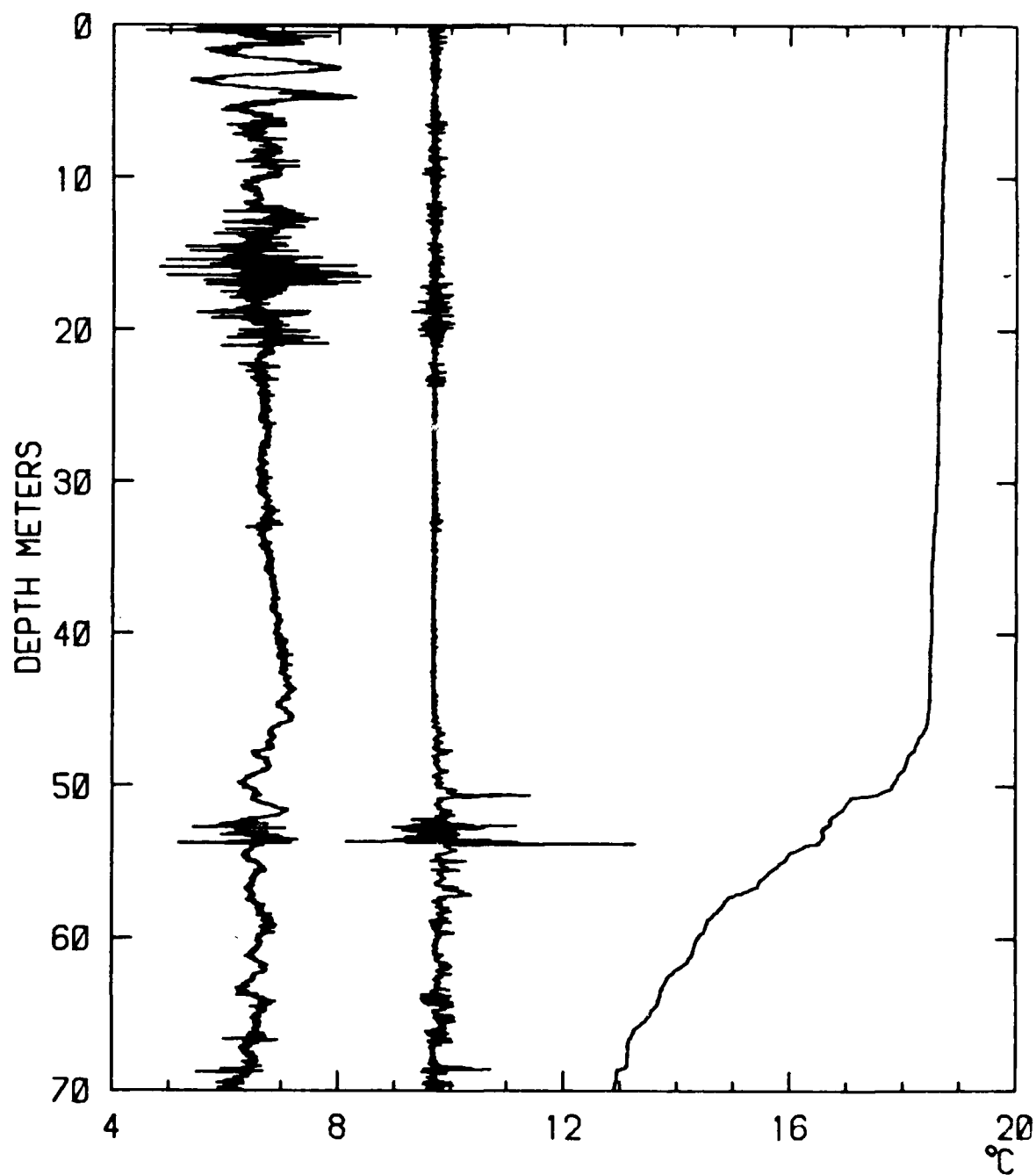
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29-OCT-83 20:46

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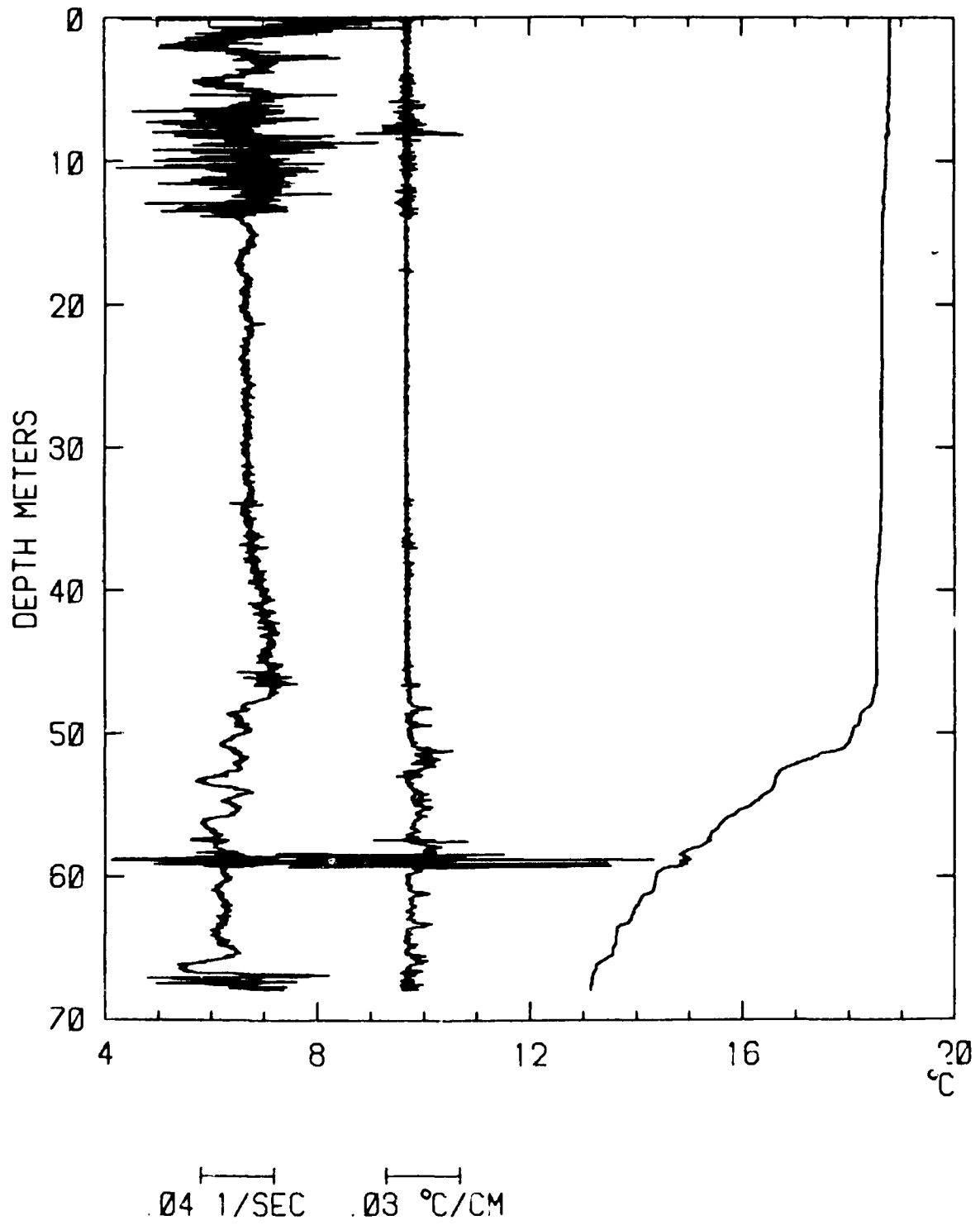
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TAPE 31
FILE 5

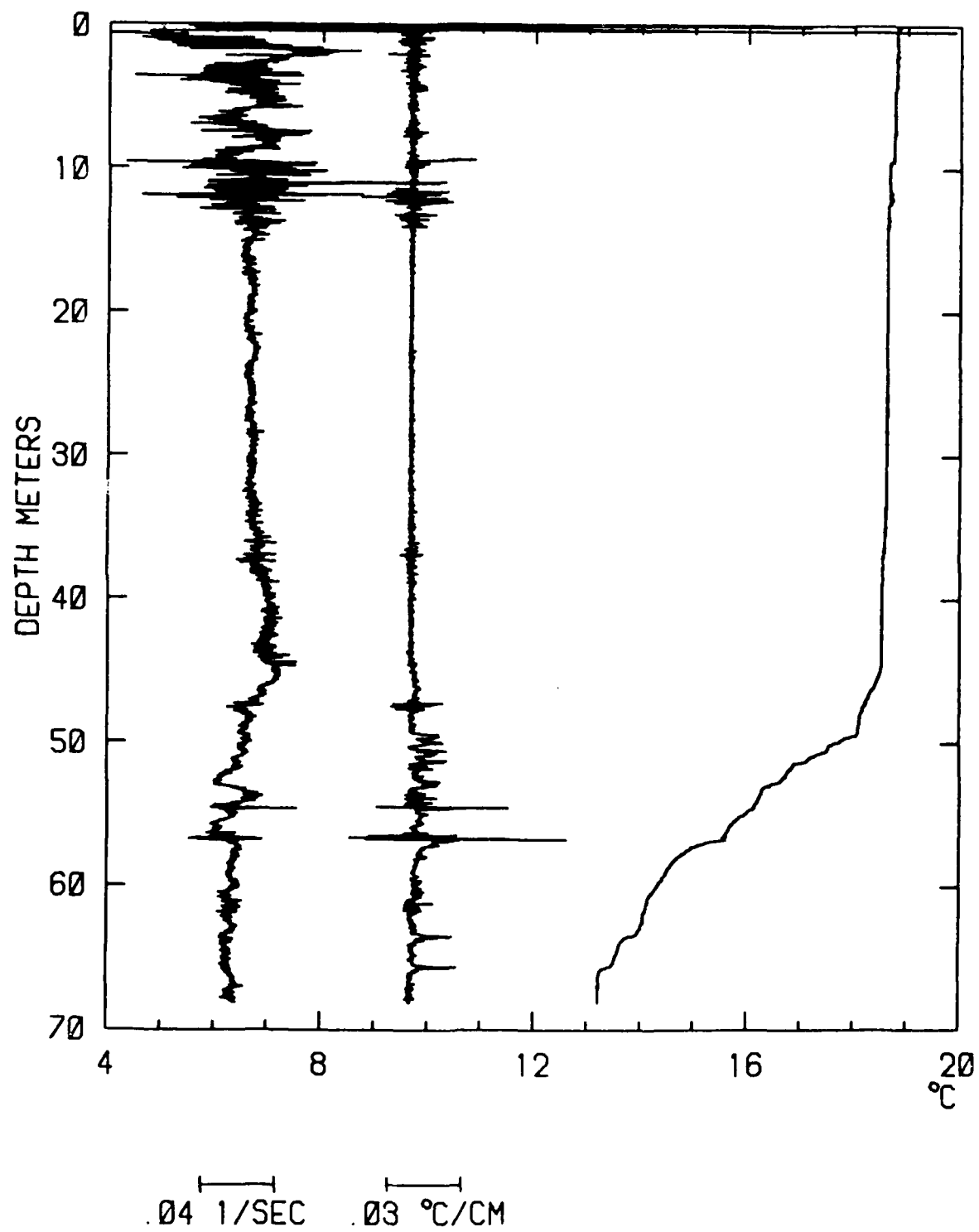


04 1/SEC 03 °C/CM

29-OCT-83 21:06

TAPE 31
FILE 6

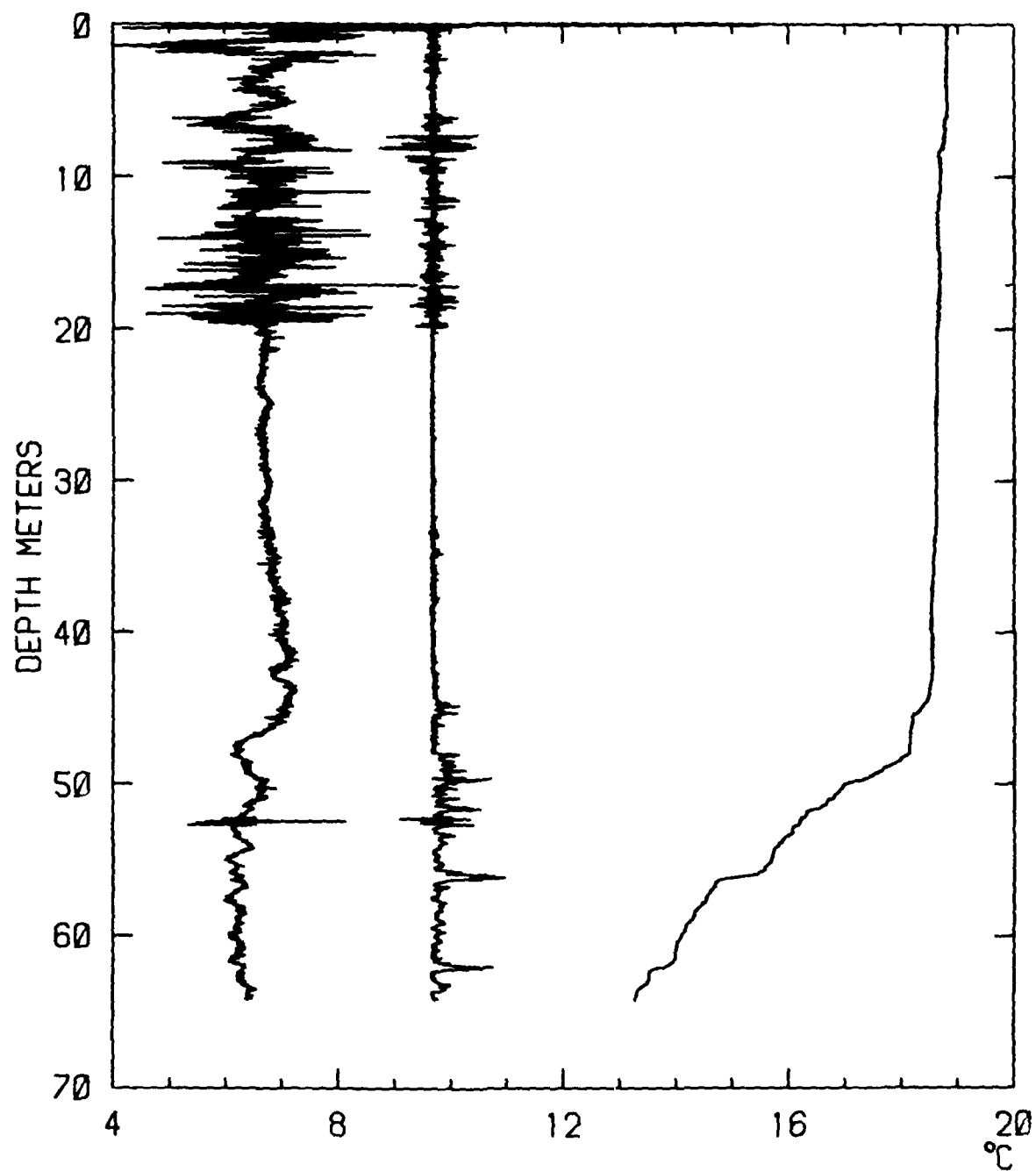
29-OCT-83 21:15

TAPE 31
FILE 7

29-OCT-83 21:23

80

TAPE 31
FILE 8

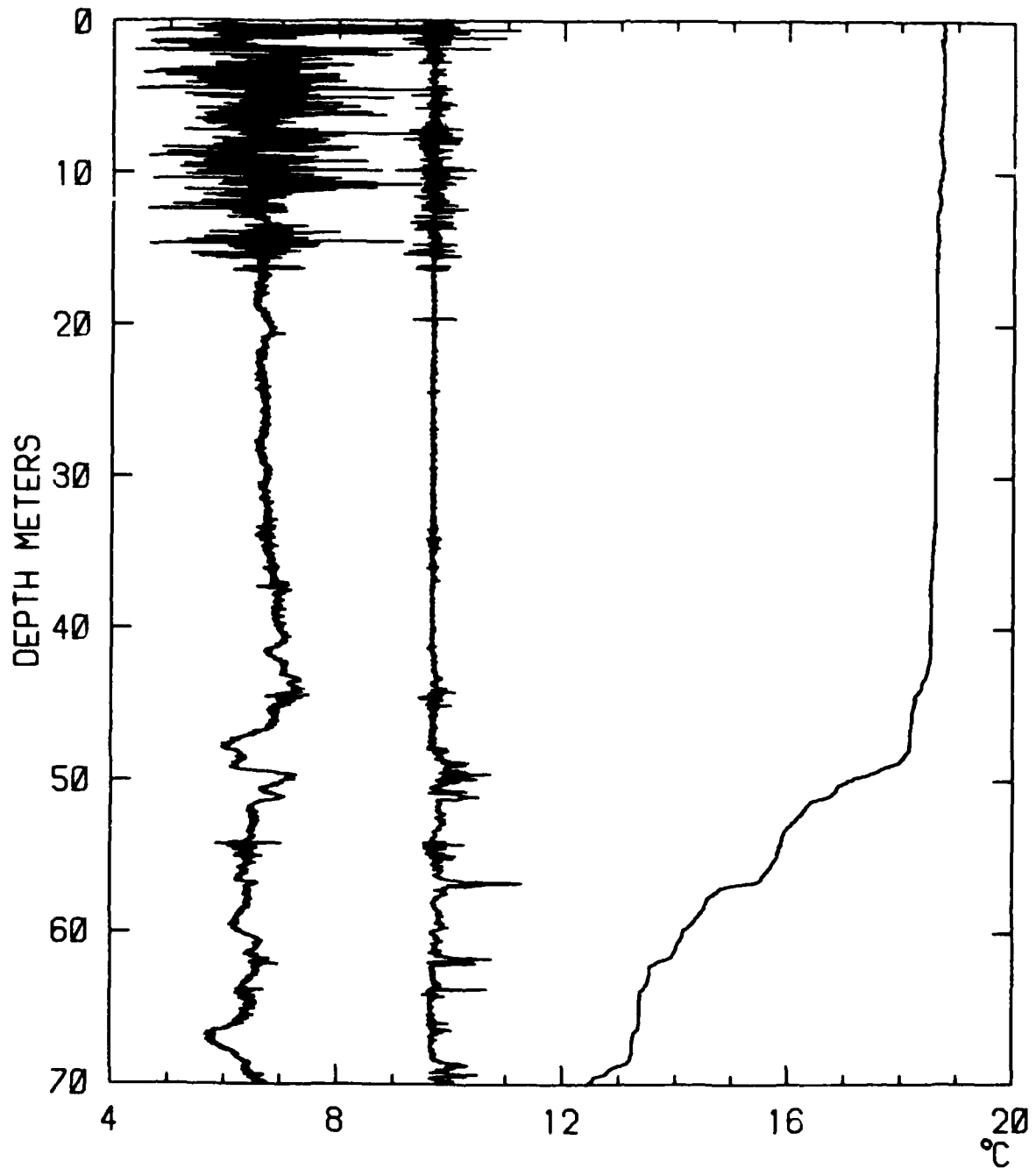


.04 1/SEC .03 °C/CM

S1

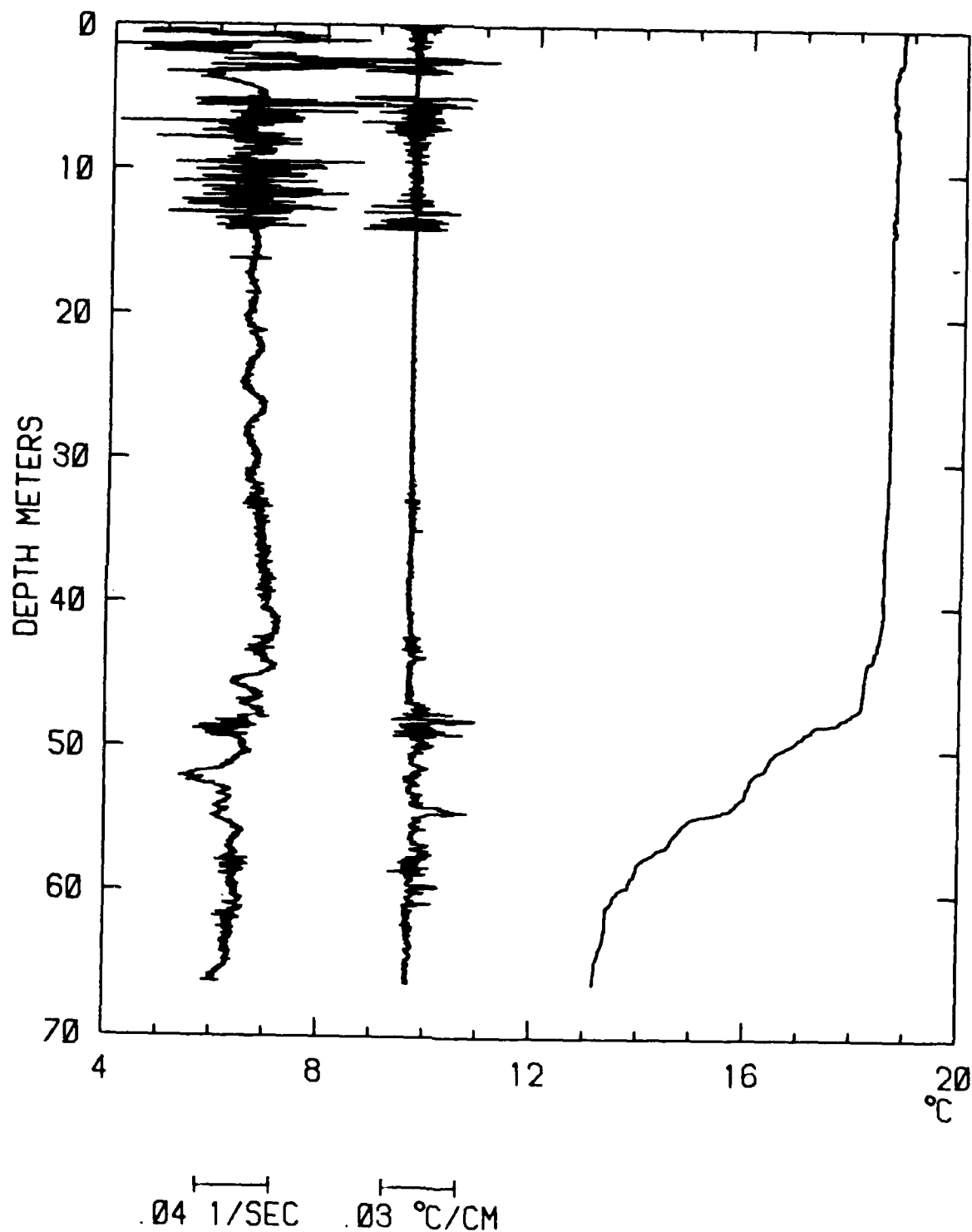
29-OCT-83 21:31

TAPE 31
FILE 9



04 1/SEC 03 °C/CM

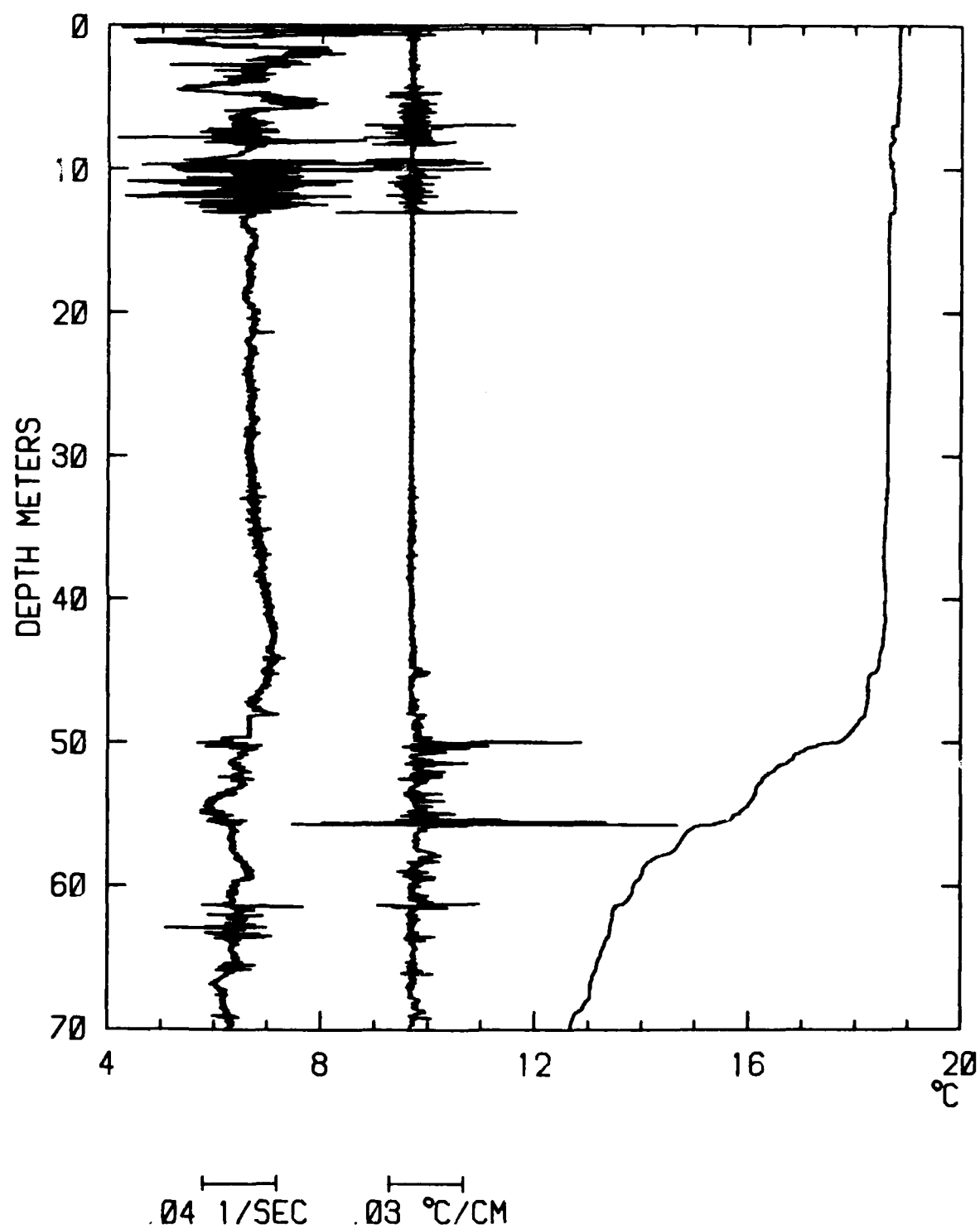
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TAPE 31
FILE 10

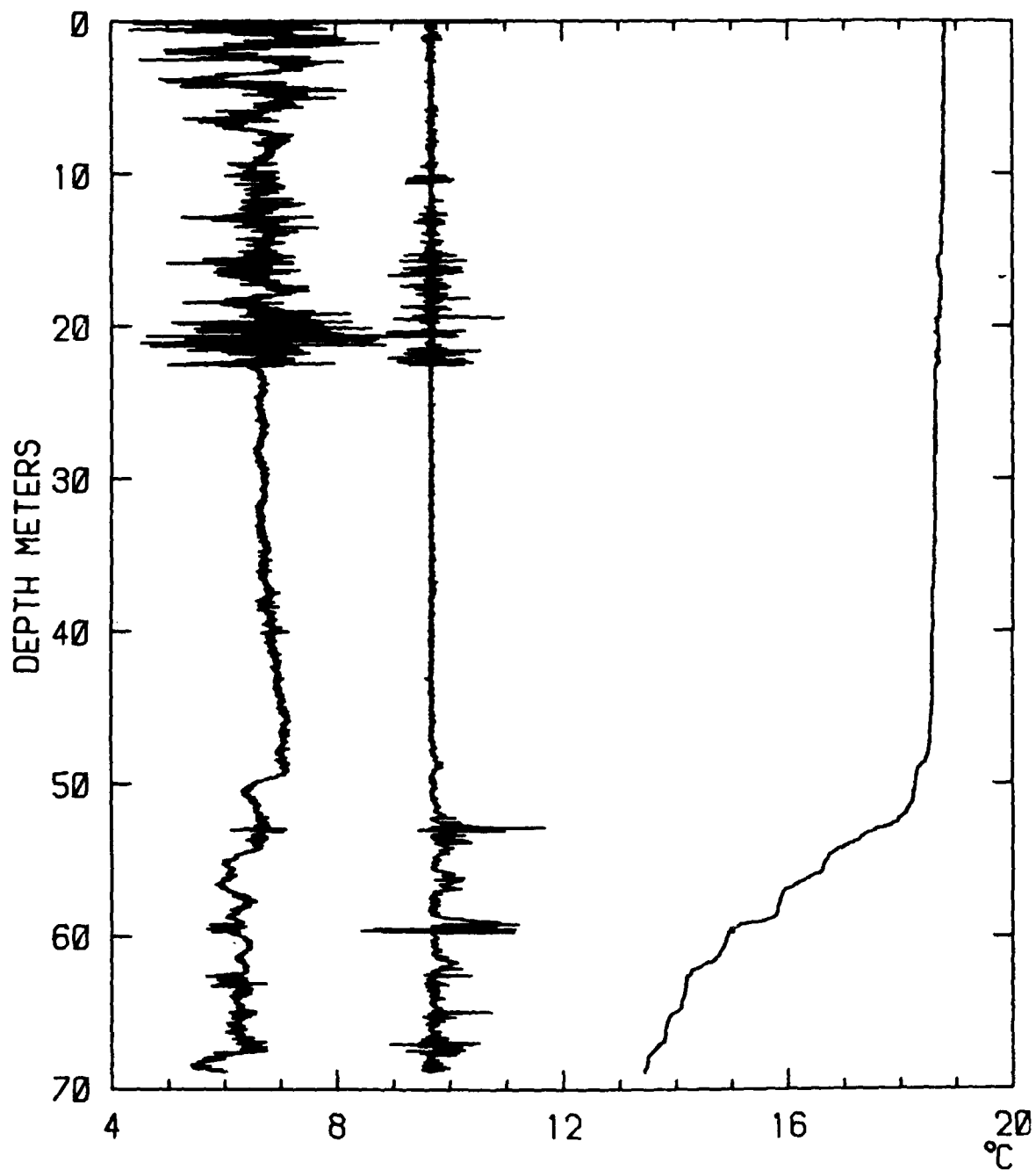
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83

TAPE 31
FILE 11



29-OCT-83 21:56

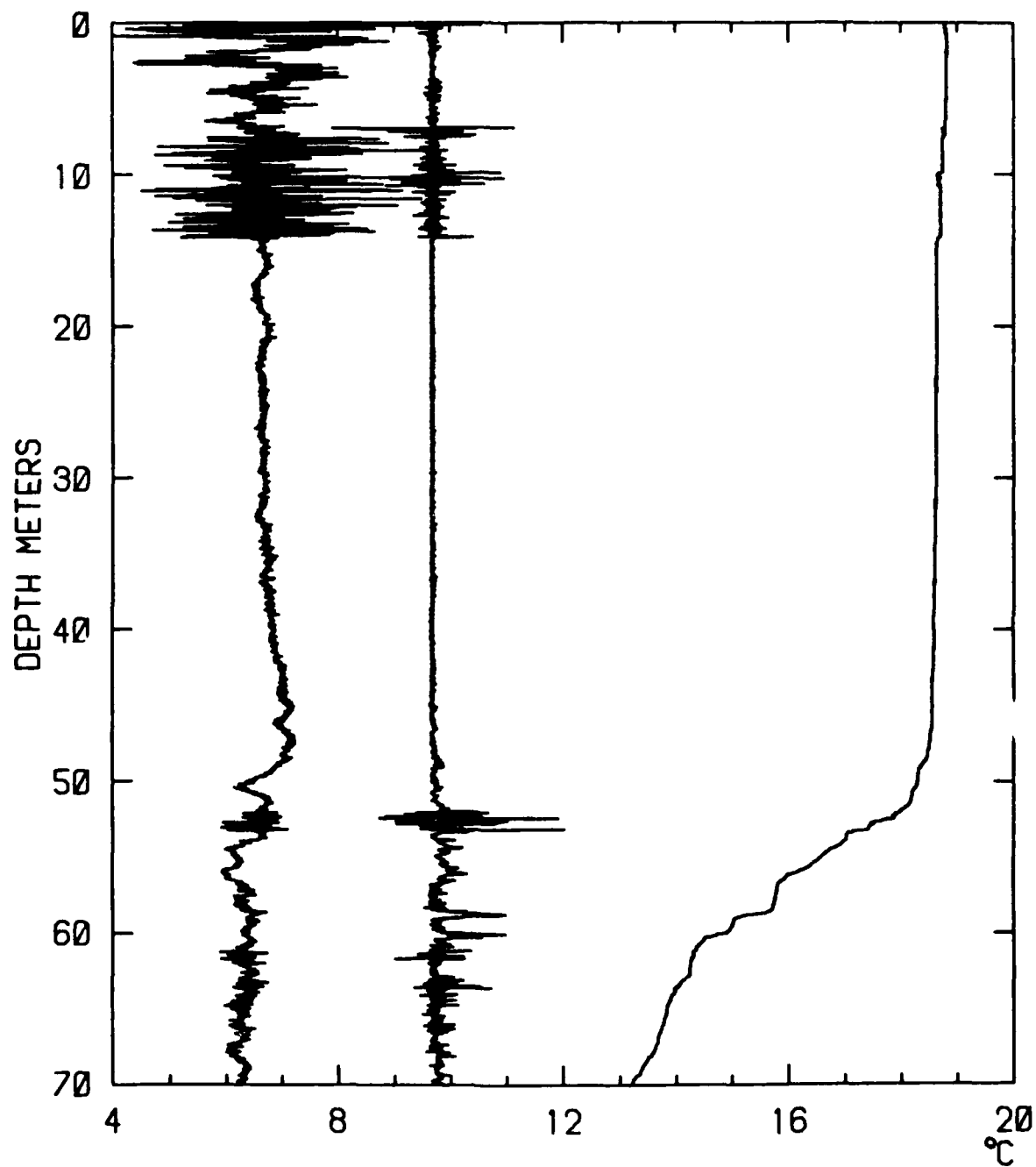
TAPE 31
FILE 12

04 1/SEC 03 °C/CM

29-OCT-83 22:05

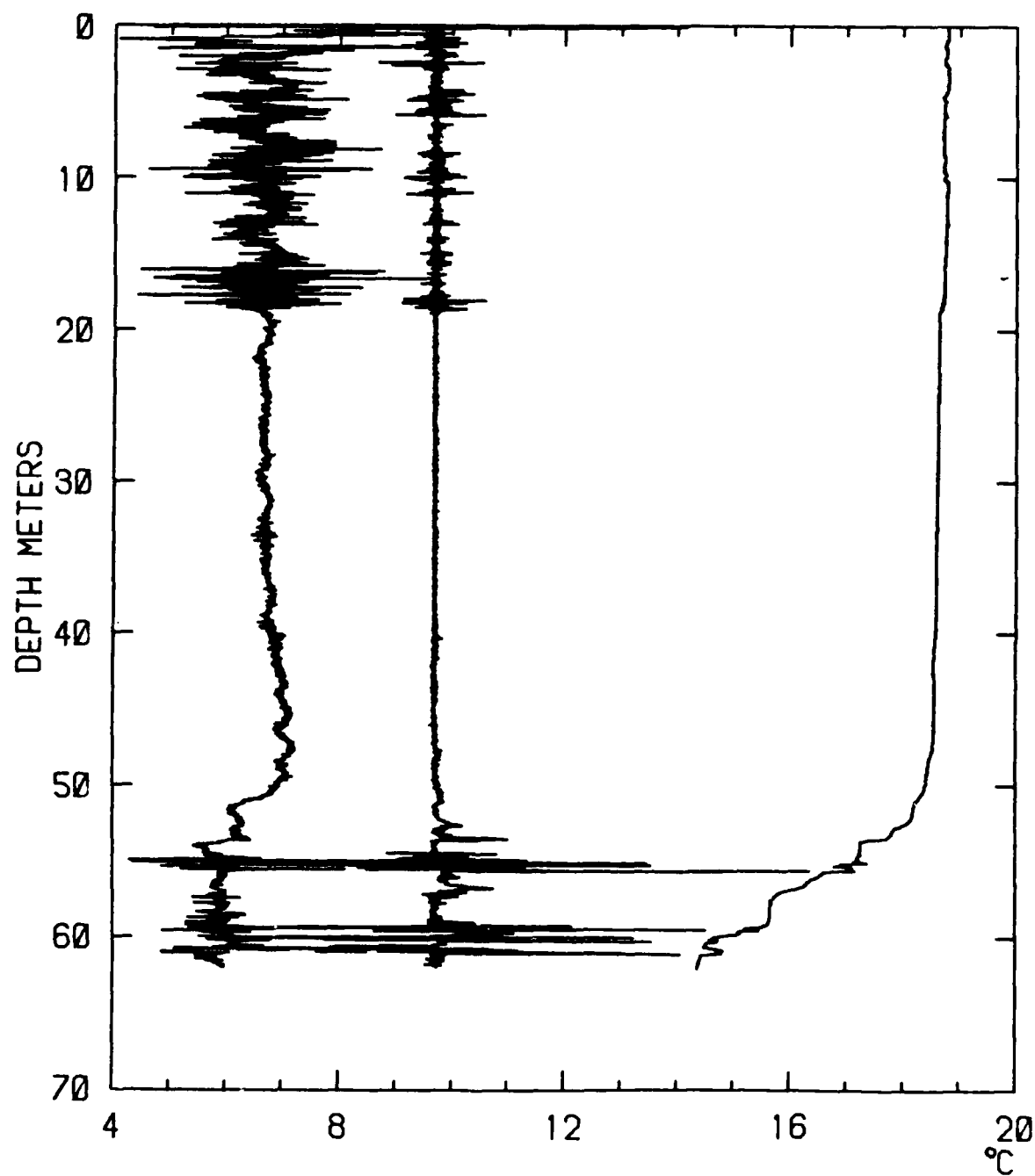
85

TAPE 31
FILE 13



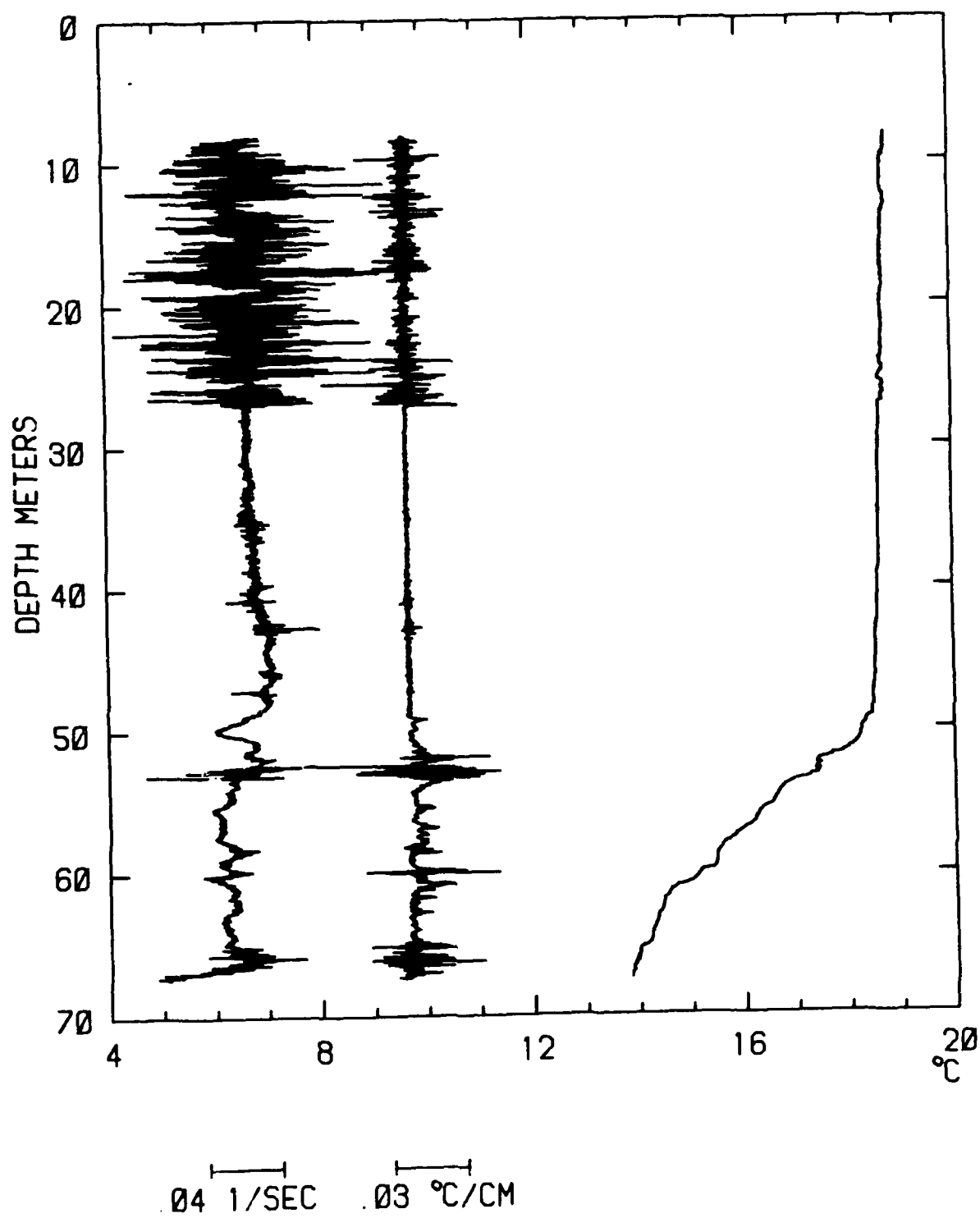
.04 1/SEC .03 °C/CM

29-OCT-83 22:13

TAPE 31
FILE 14

.04 1/SEC .03 °C/CM

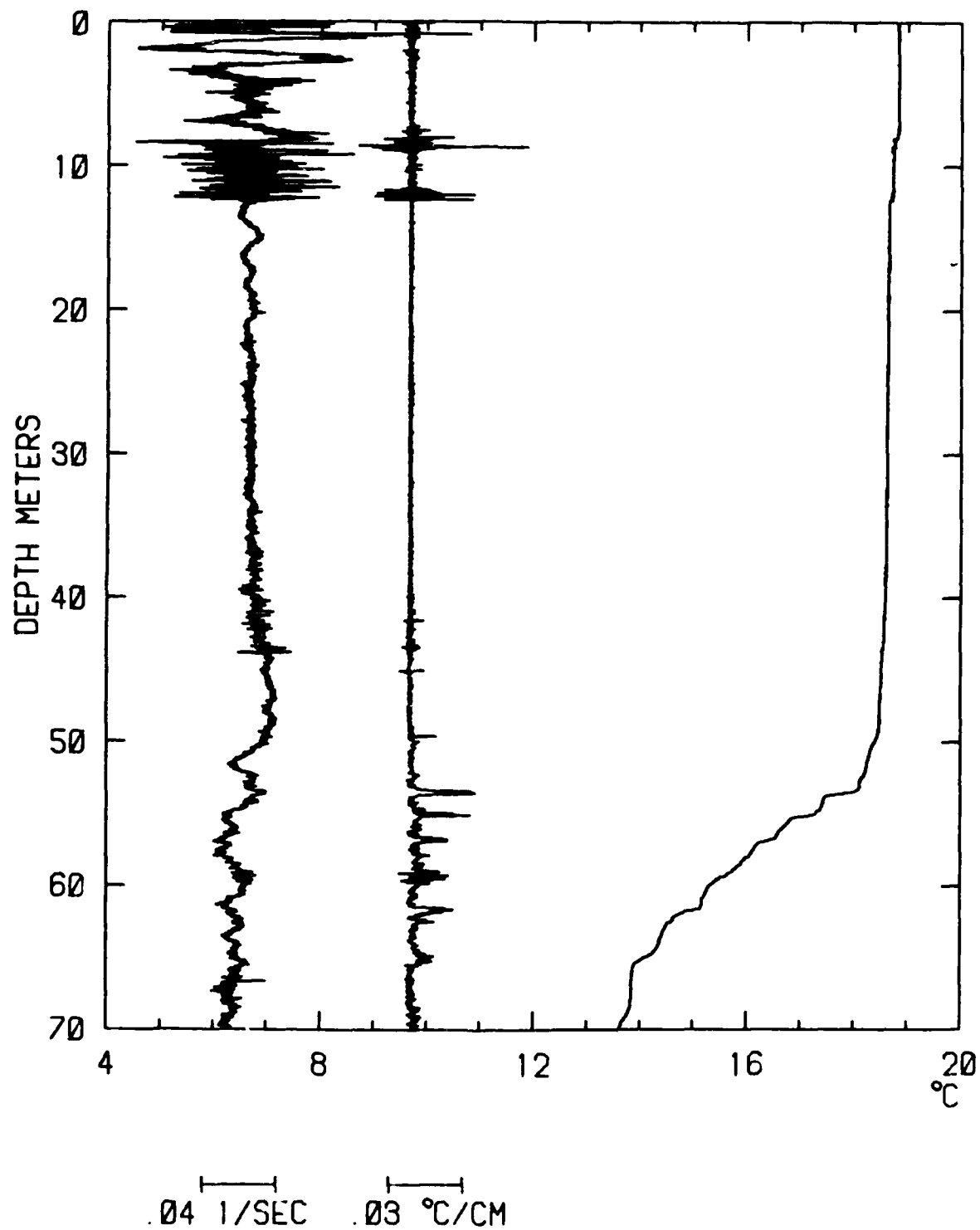
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29-OCT-83 22:30

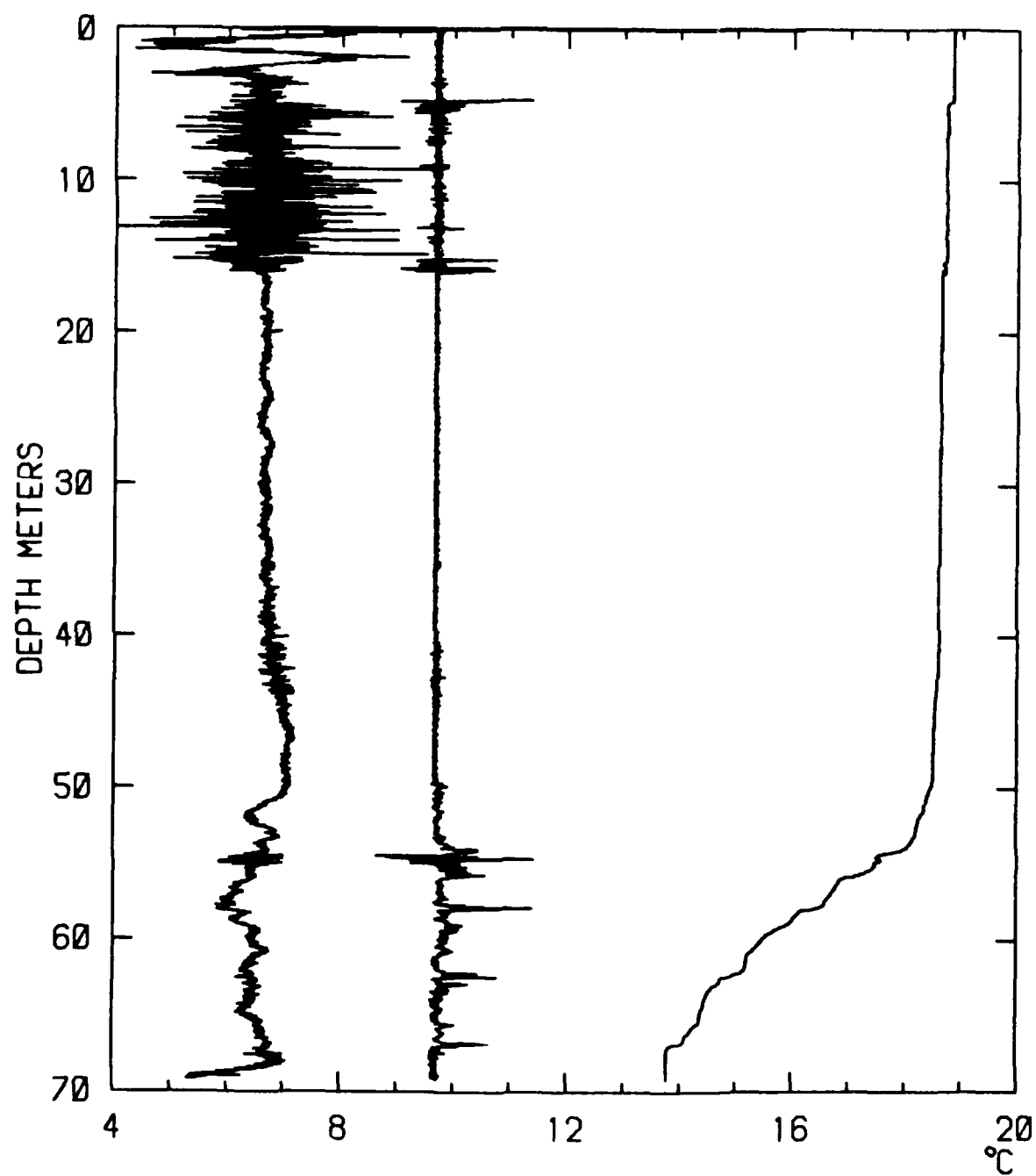
88

TAPE 32
FILE 2



29-OCT-83 22:38 80

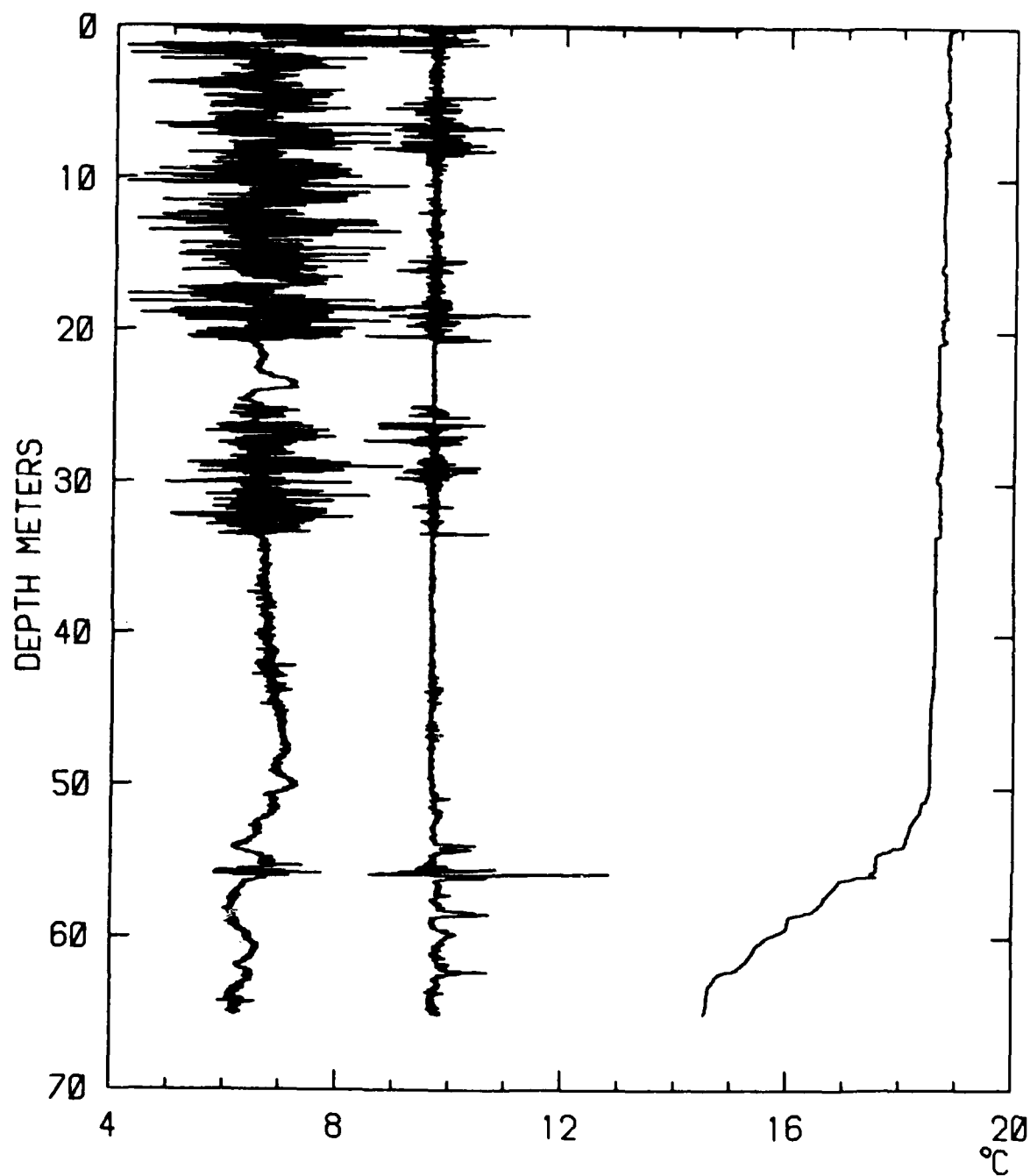
TAPE 32
FILE 3



.04 1/SEC .03 °C/CM

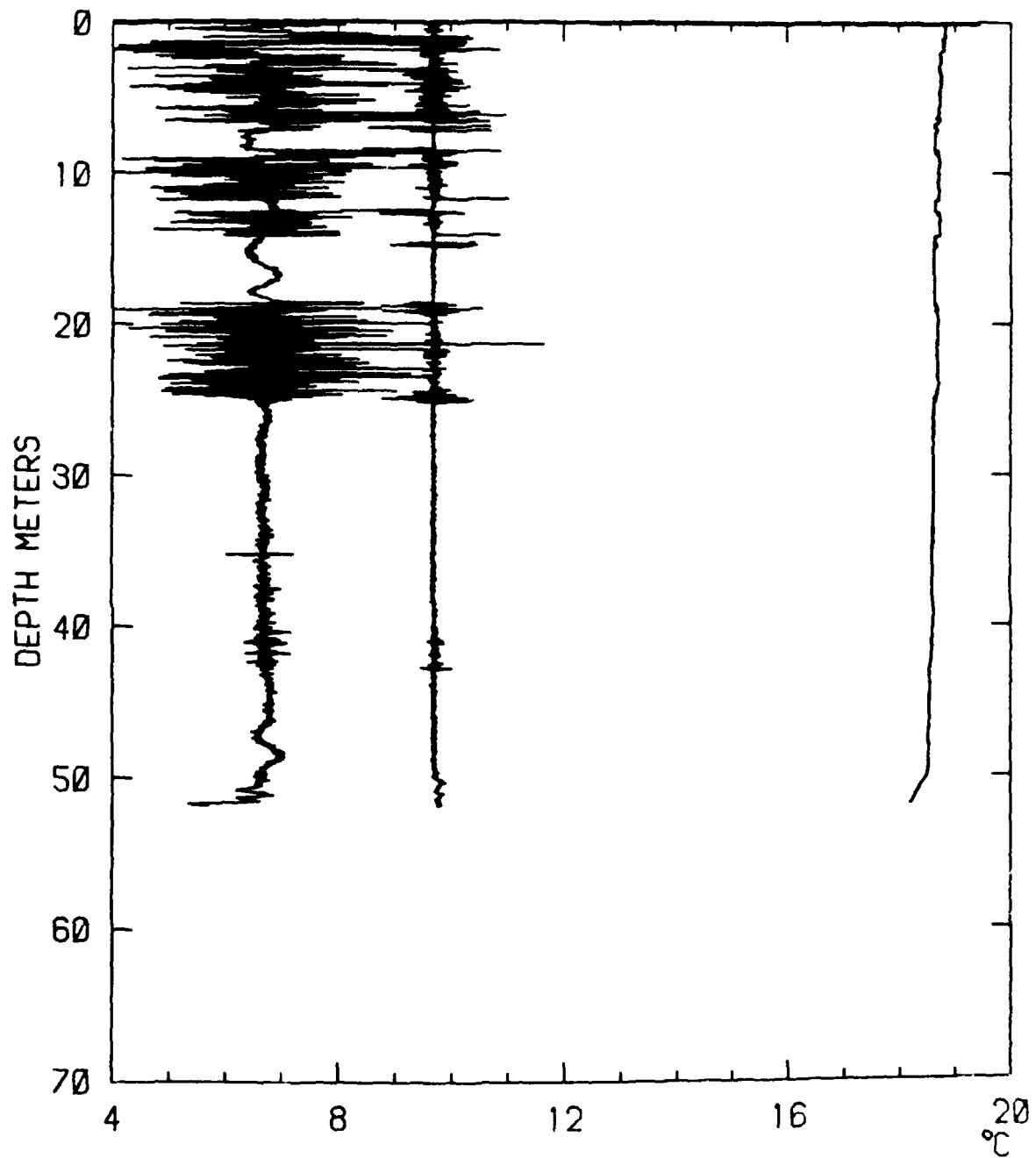
29-OCT-83 22:48

TAPE 32
FILE 4



29-OCT-83 22:55

TAPE 32
FILE 5



.04 1/SEC .03 °C/CM

AD-A141 048

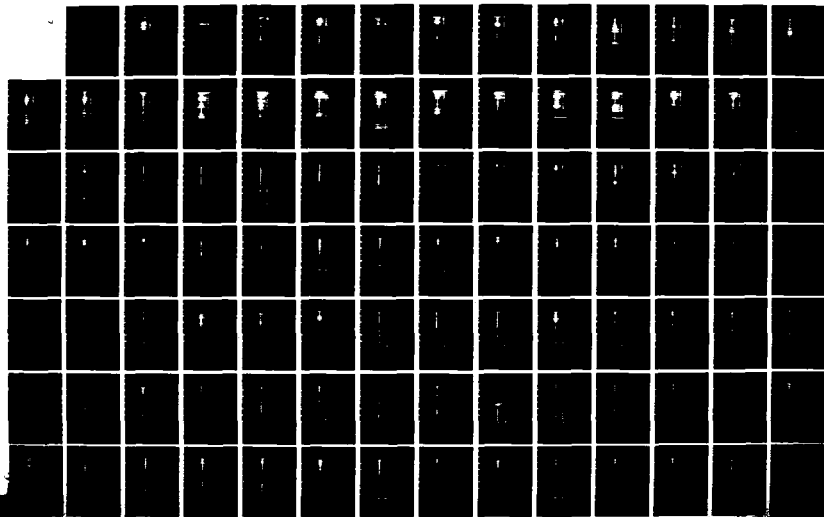
WAZP OBSERVATIONS DURING MILDEX OCTOBER-NOVEMBER 1983
(U) OREGON STATE UNIV CORVALLIS SCHOOL OF OCEANOGRAPHY
M M PARK ET AL. NOV 83 REF-84-8 N00014-79-C-0004

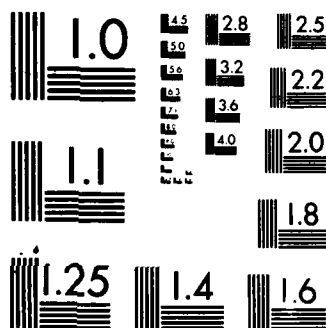
2/3

UNCLASSIFIED

F/G 8/10

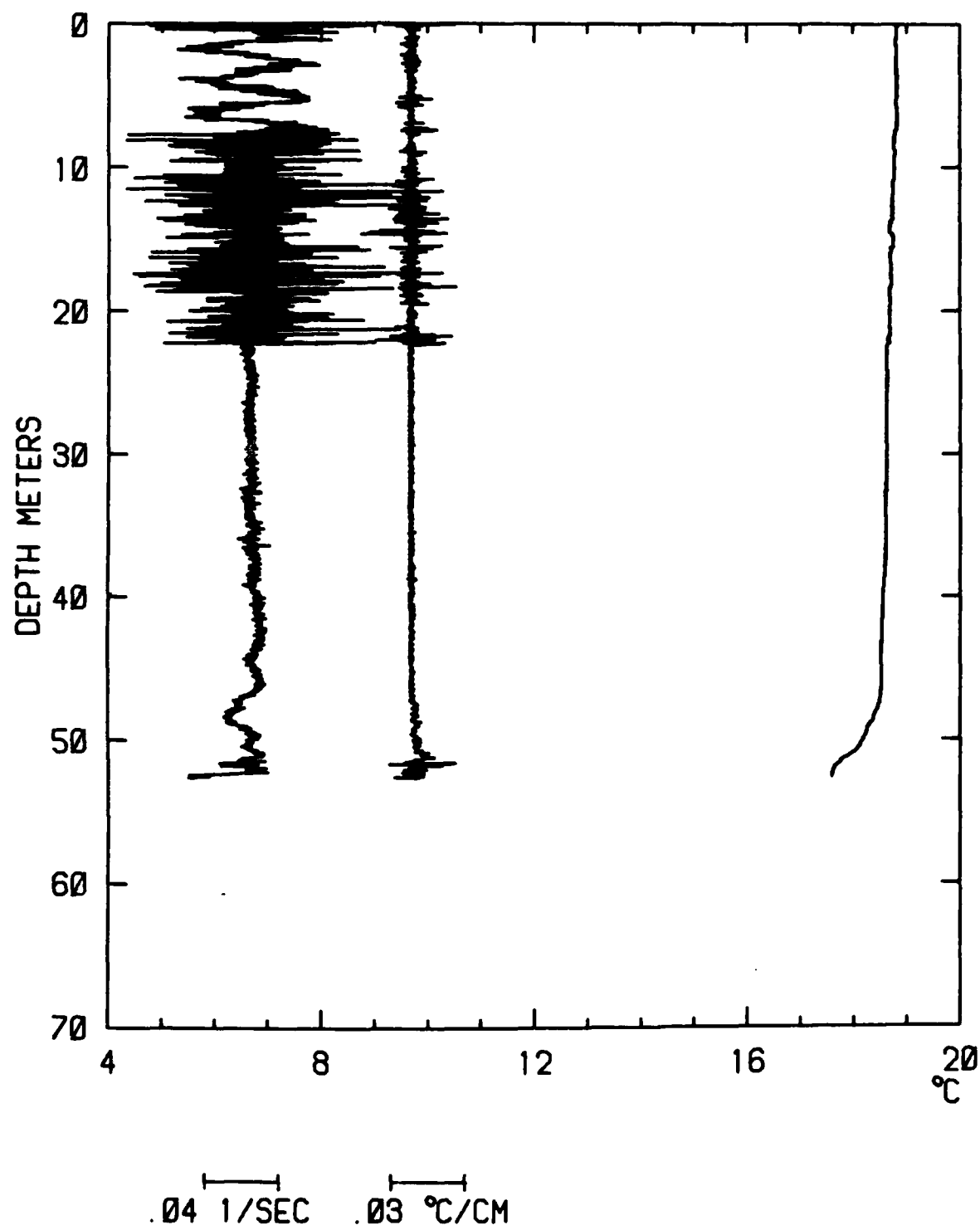
NL



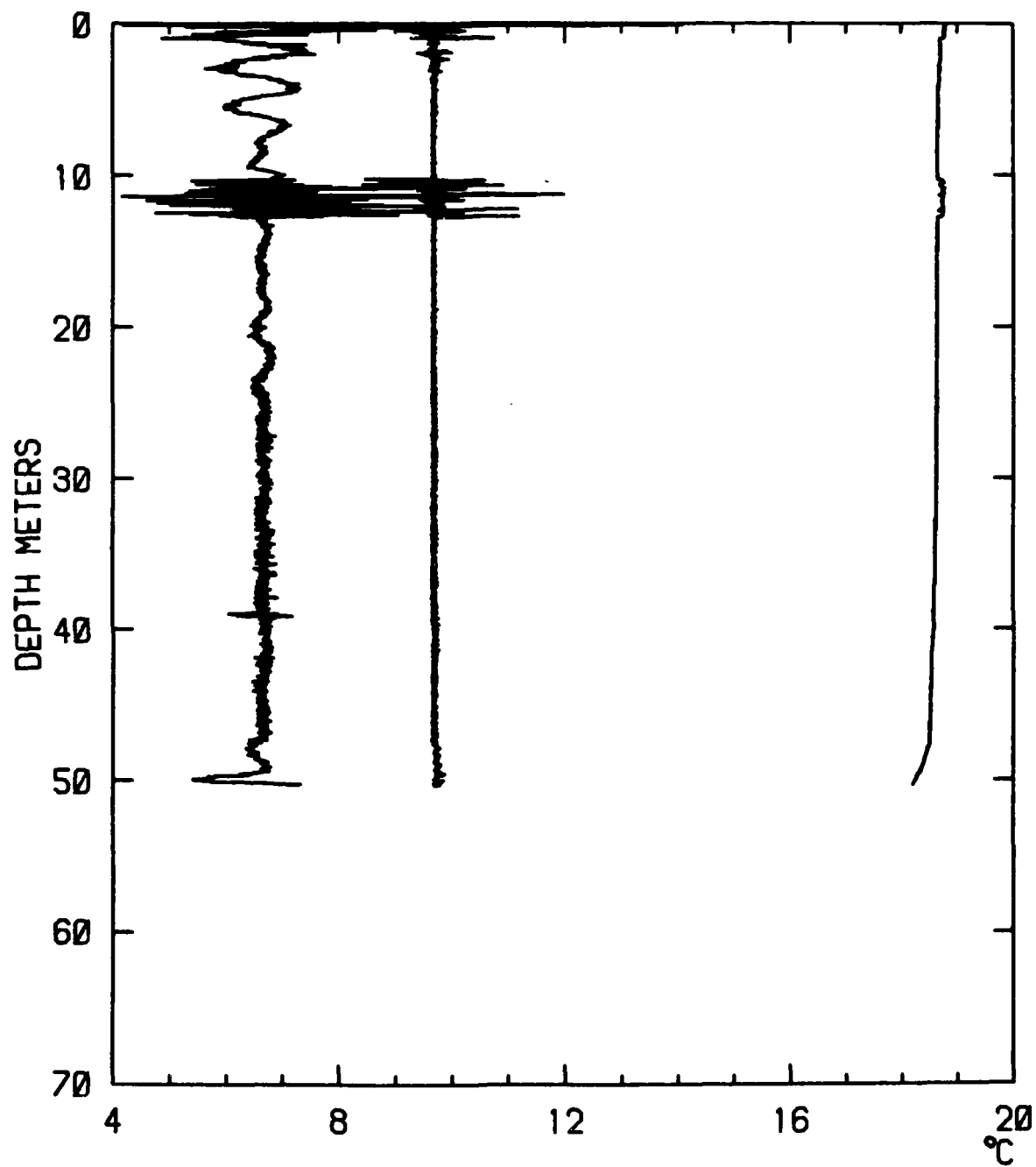


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

29-OCT-83 23:02

TAPE 32
FILE 6

29-OCT-83 23:09

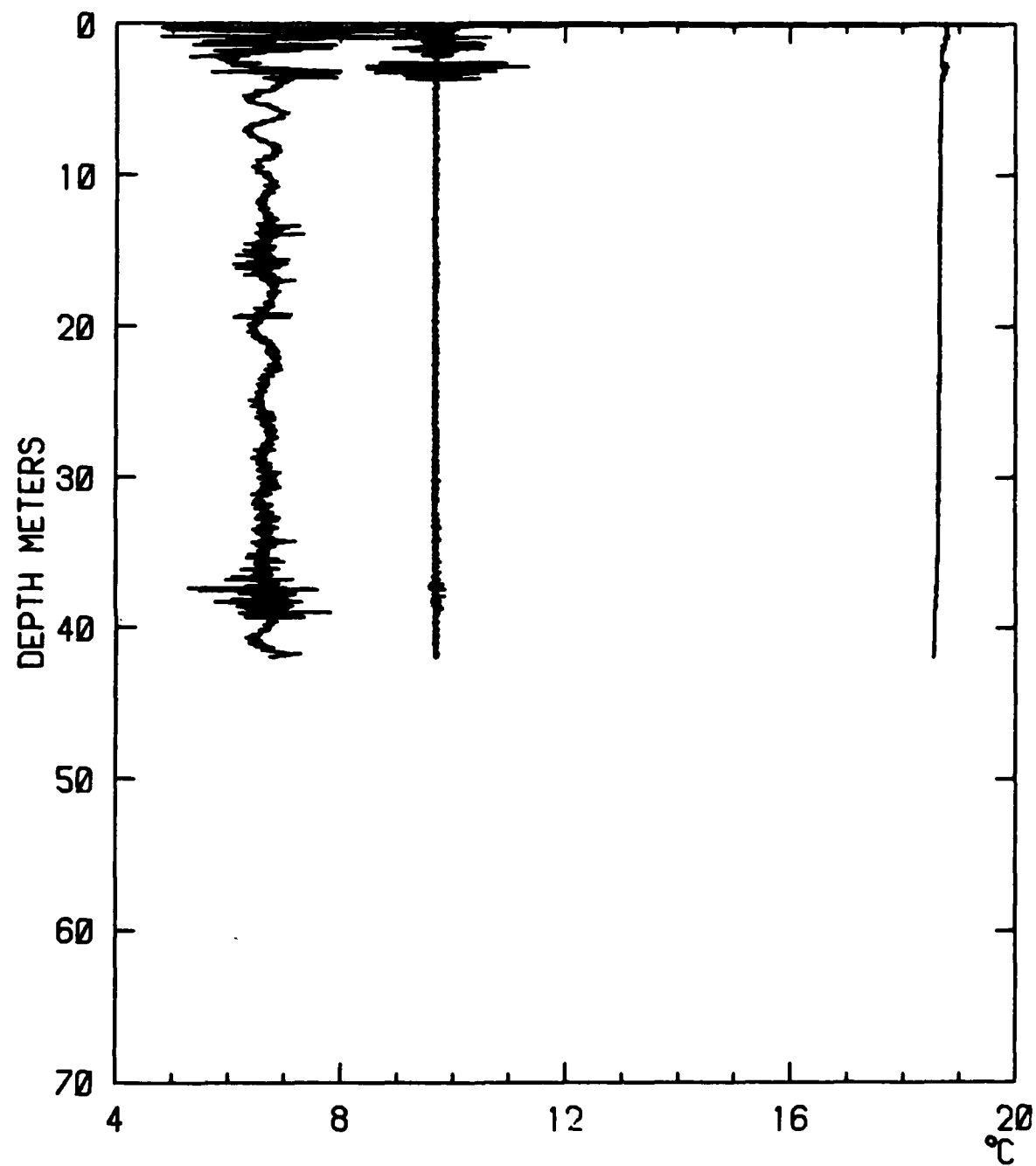
TAPE 32
FILE 7

.04 1/SEC .03 °C/CM

29-OCT-83 23:19

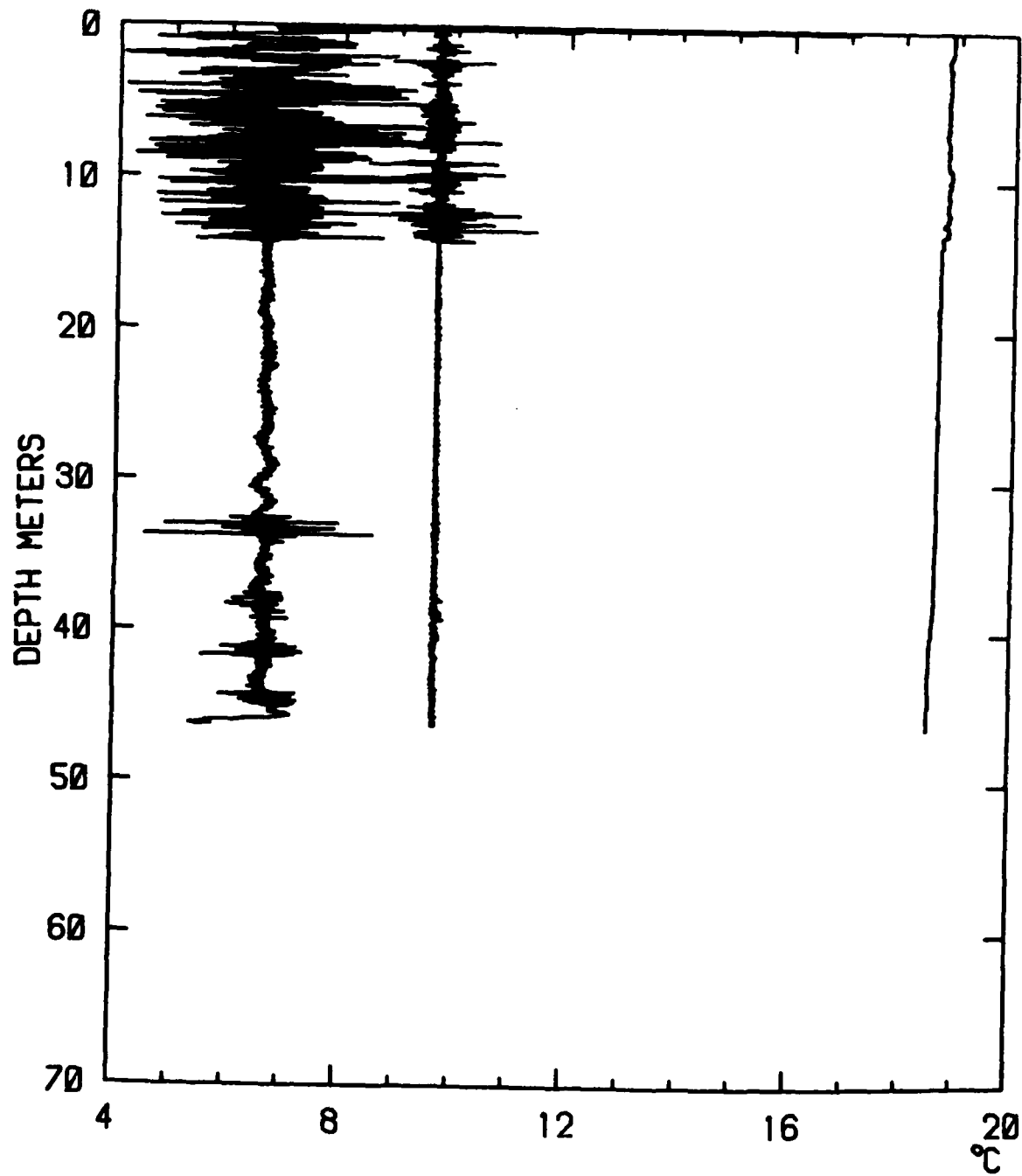
94

TAPE 32
FILE 8

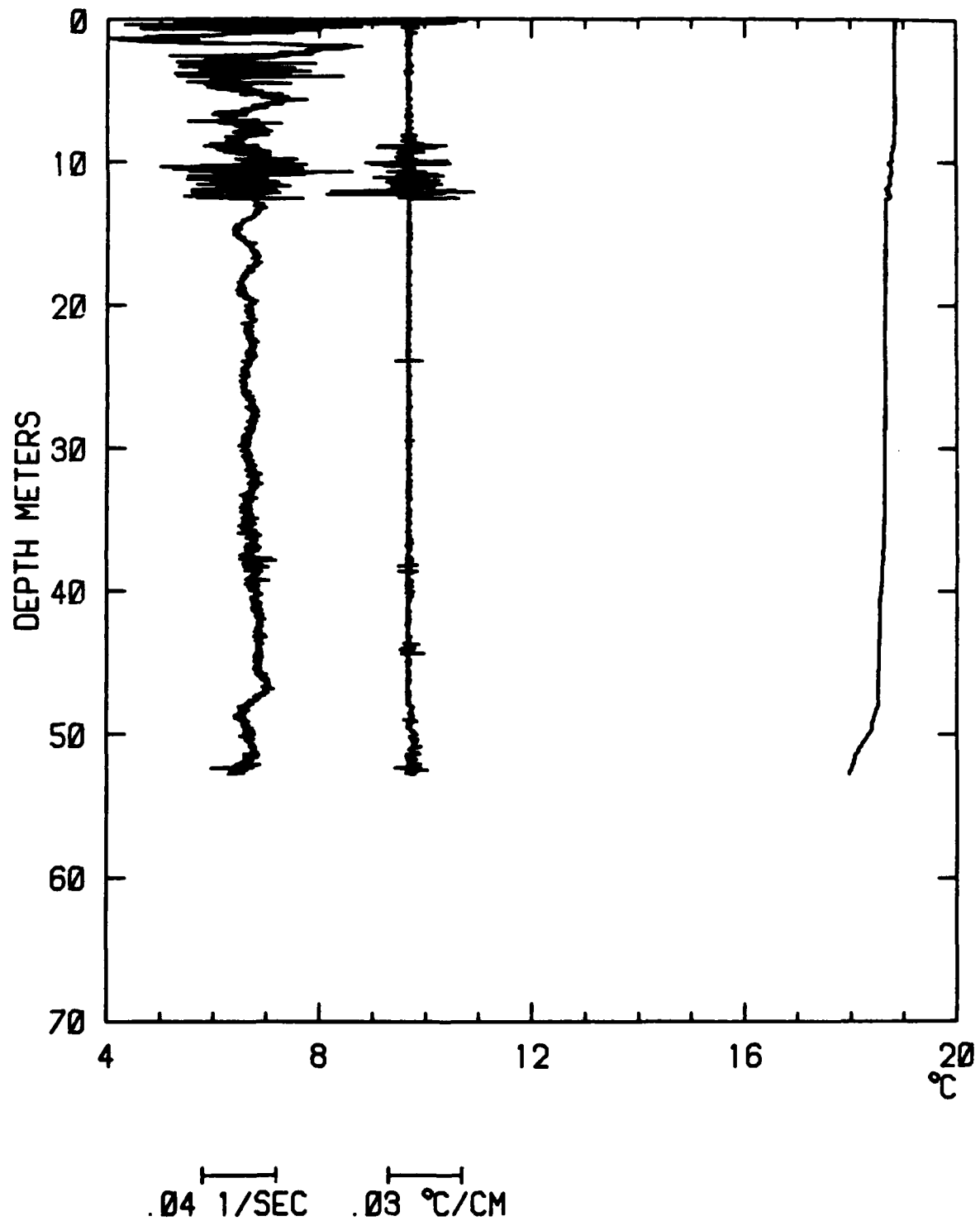


.04 1/SEC .03 °C/CM

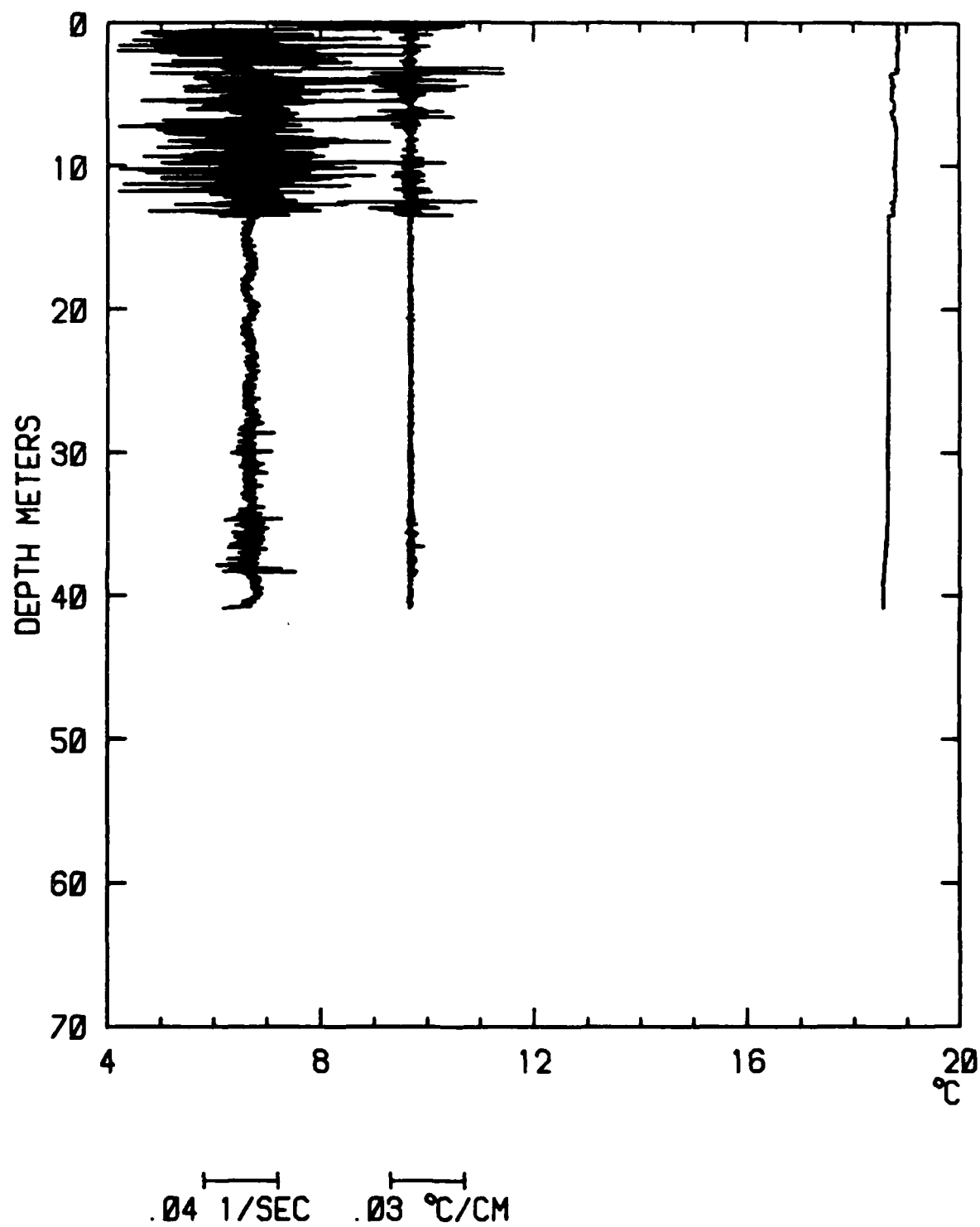
29-OCT-83 23:24

TAPE 32
FILE 9

29-OCT-83 23:32

TAPE 32
FILE 10

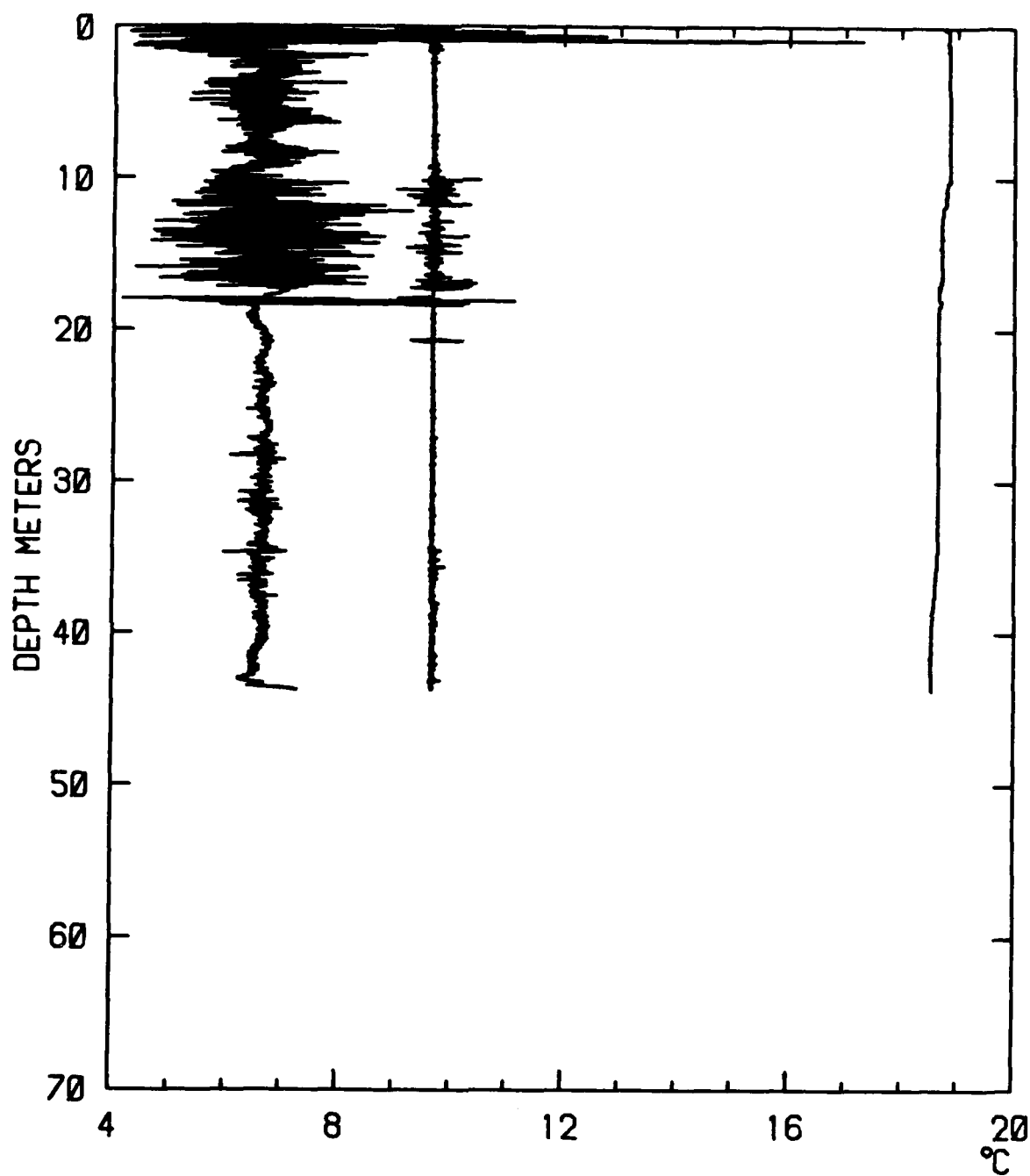
29-OCT-83 23:54

TAPE 32
FILE 12

30-OCT-83 00:22

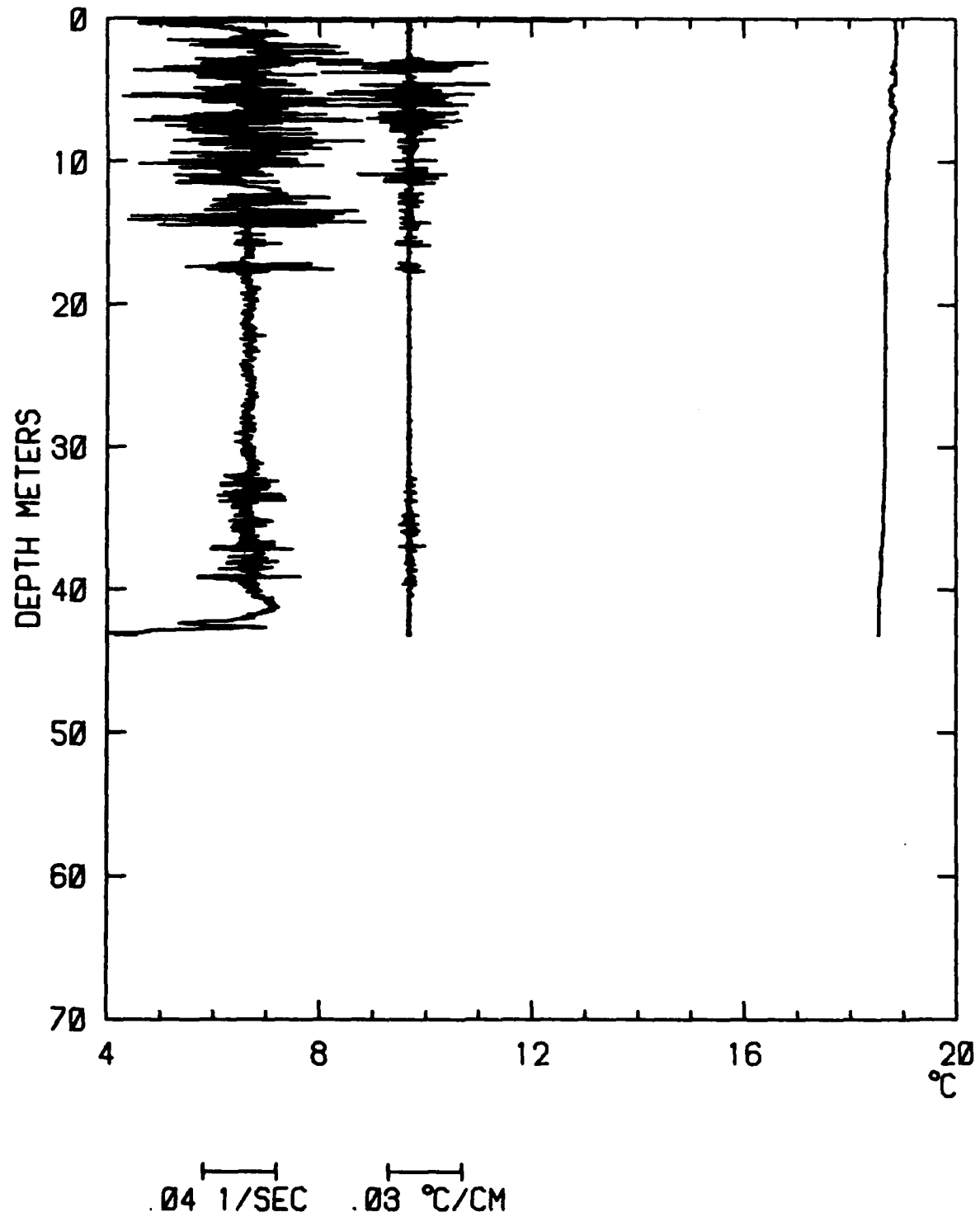
98

TAPE 32
FILE 13

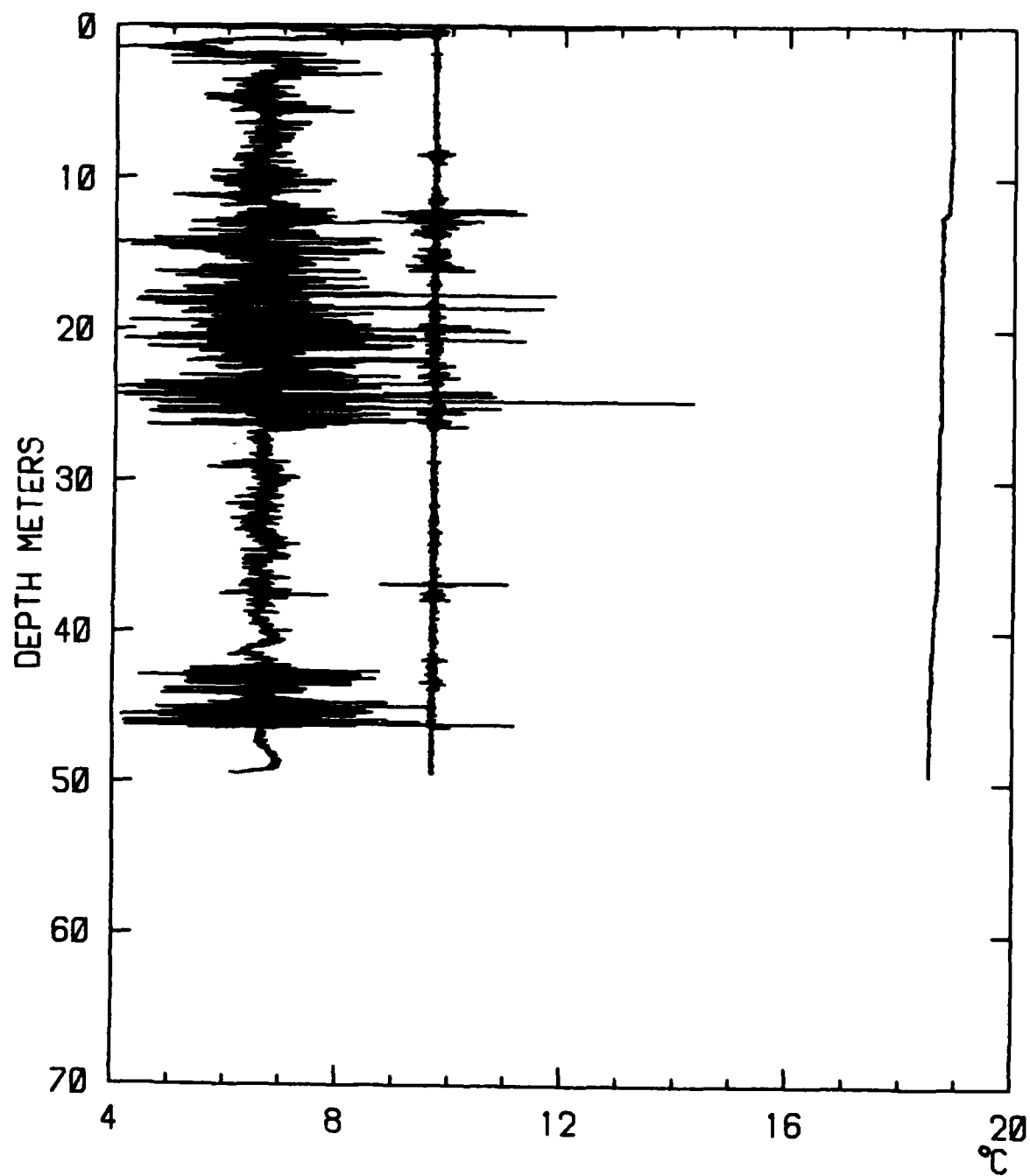


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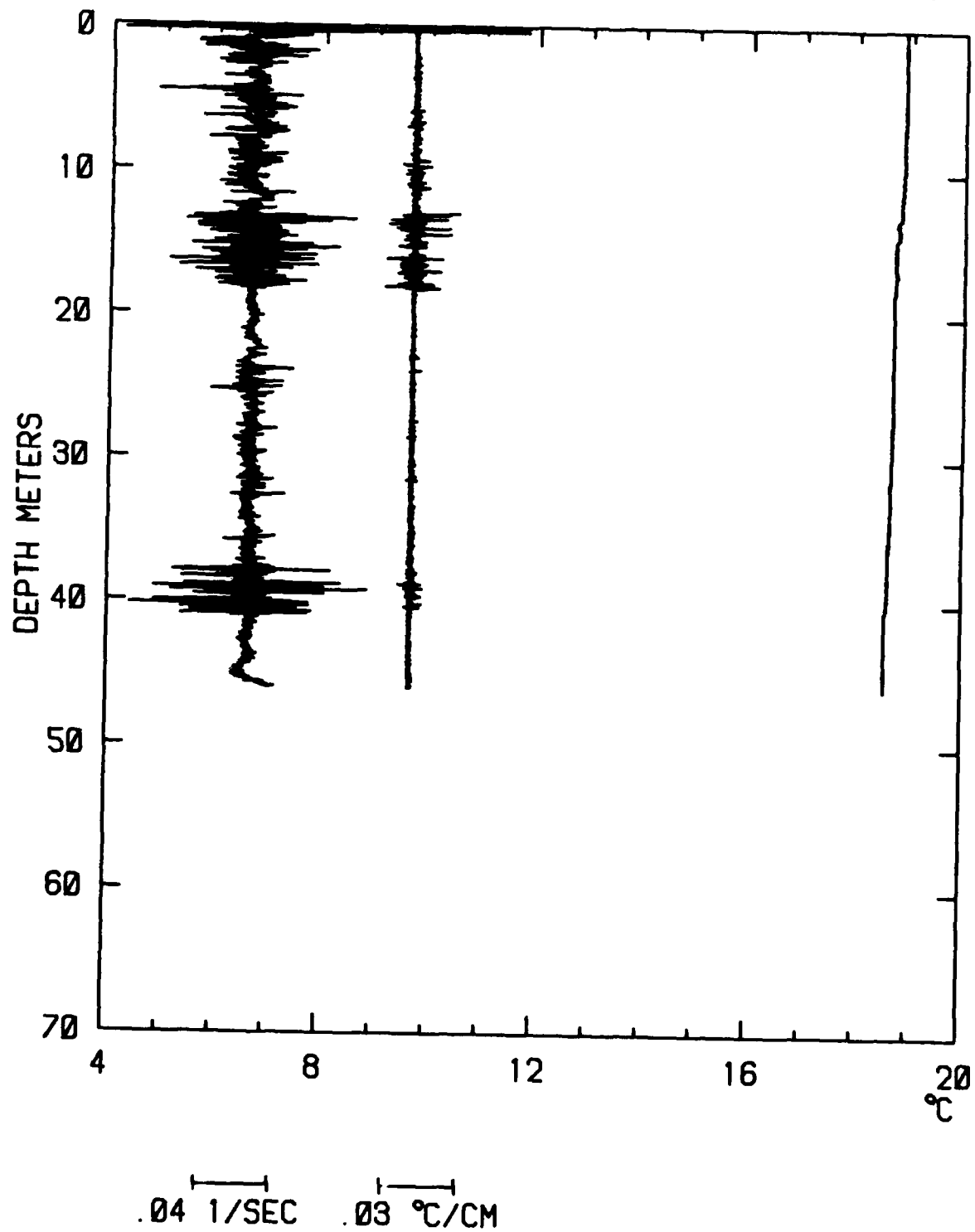
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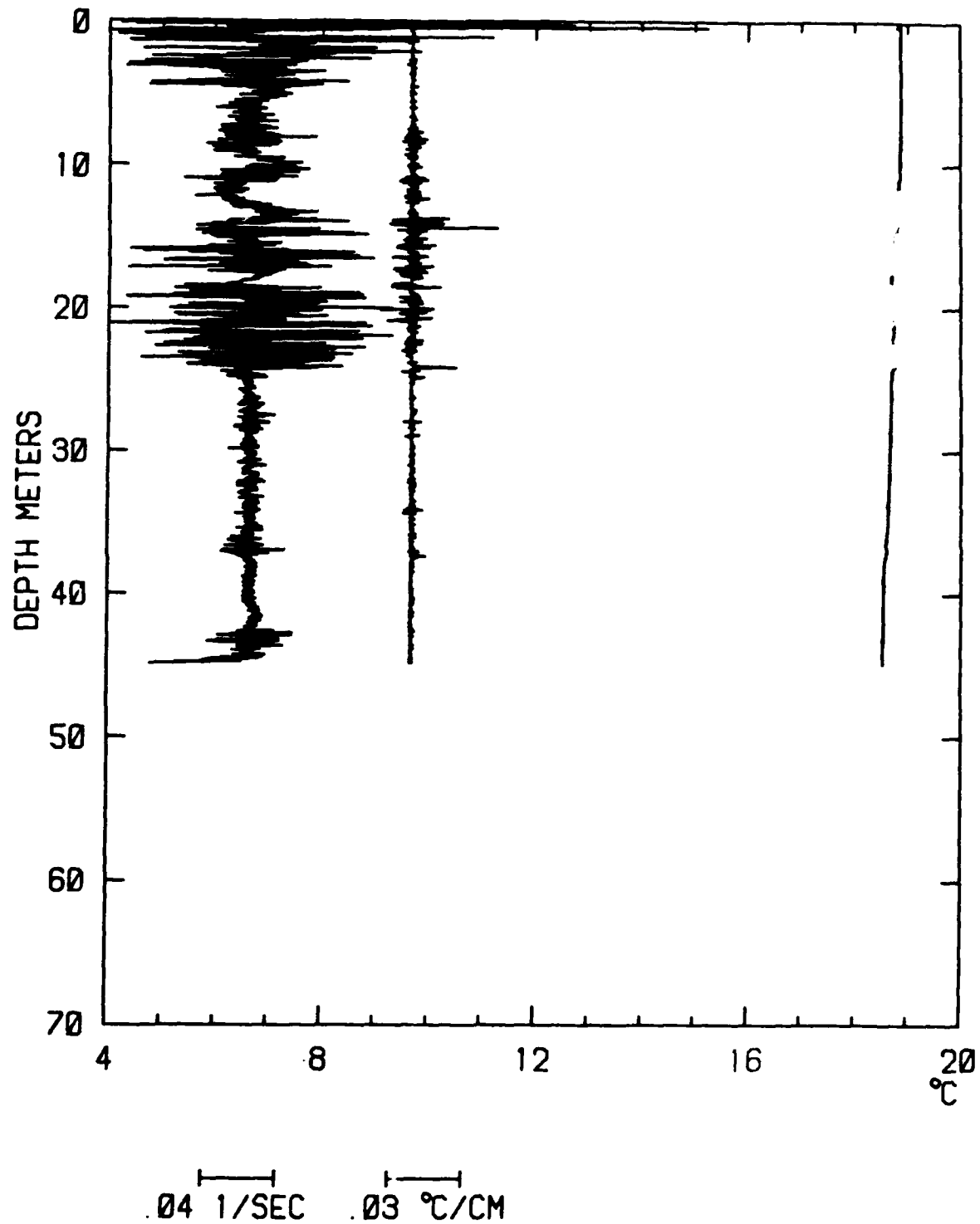
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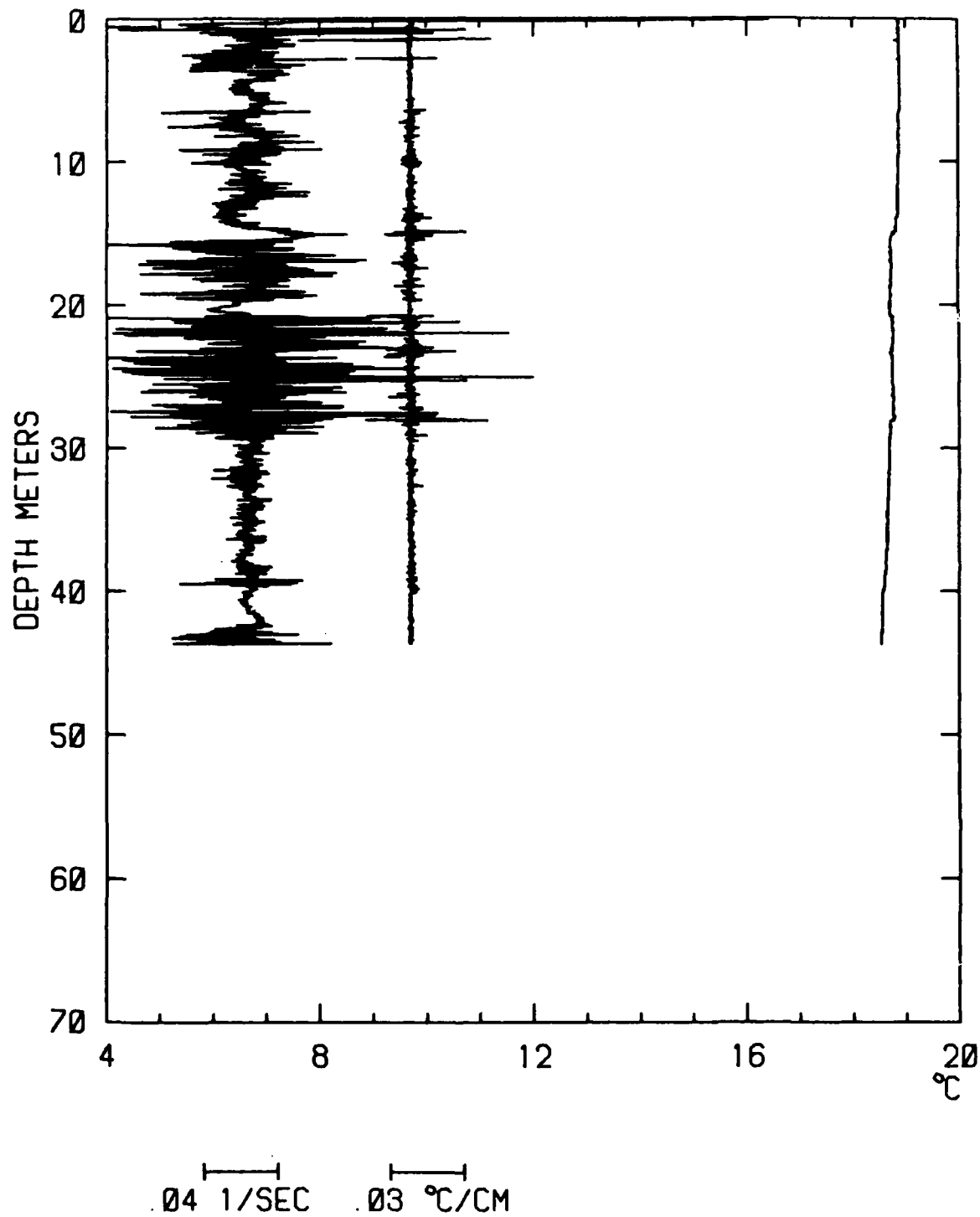
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FILE 16

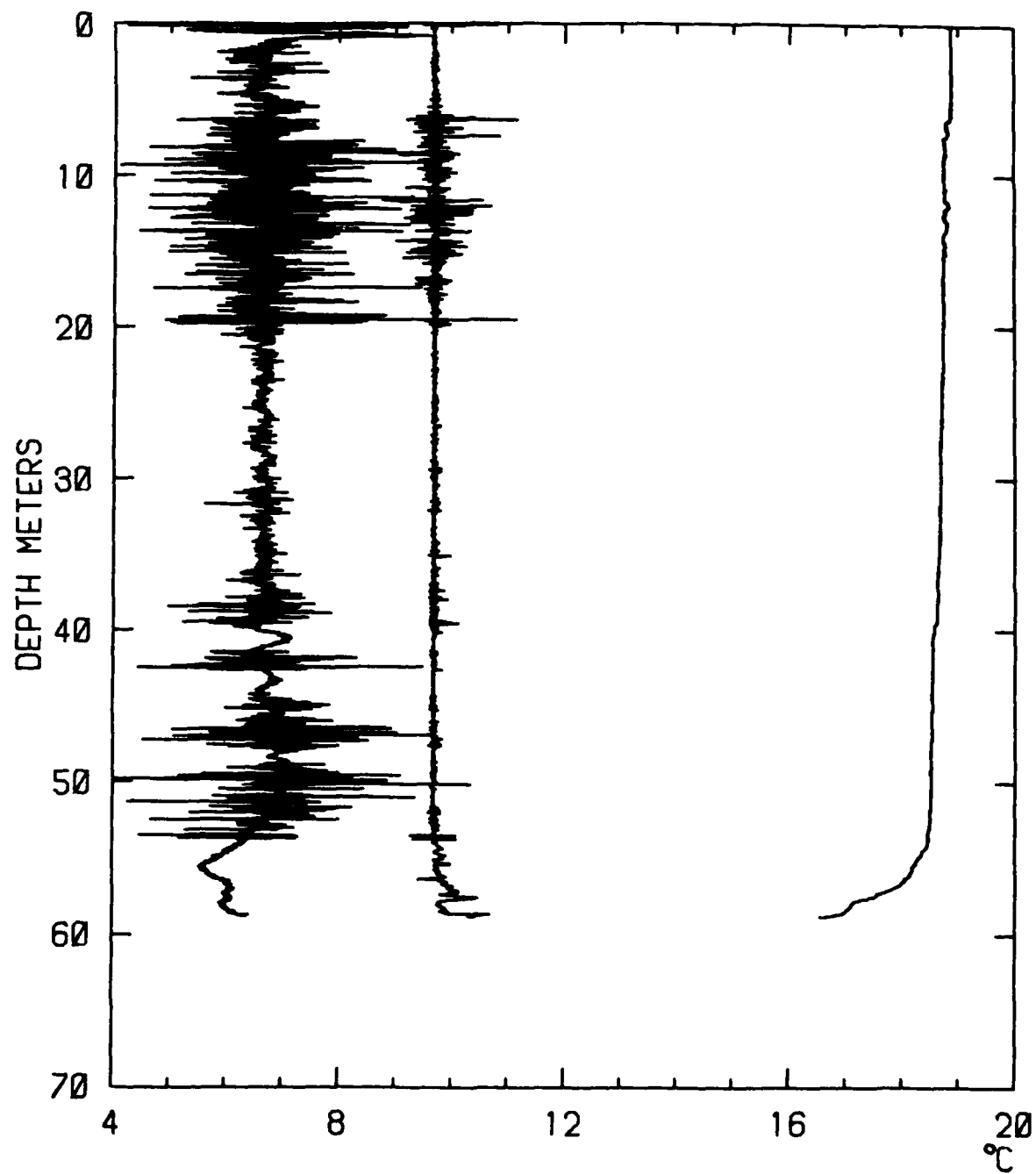
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TAPE 32
FILE 17

30-OCT-83 00:56

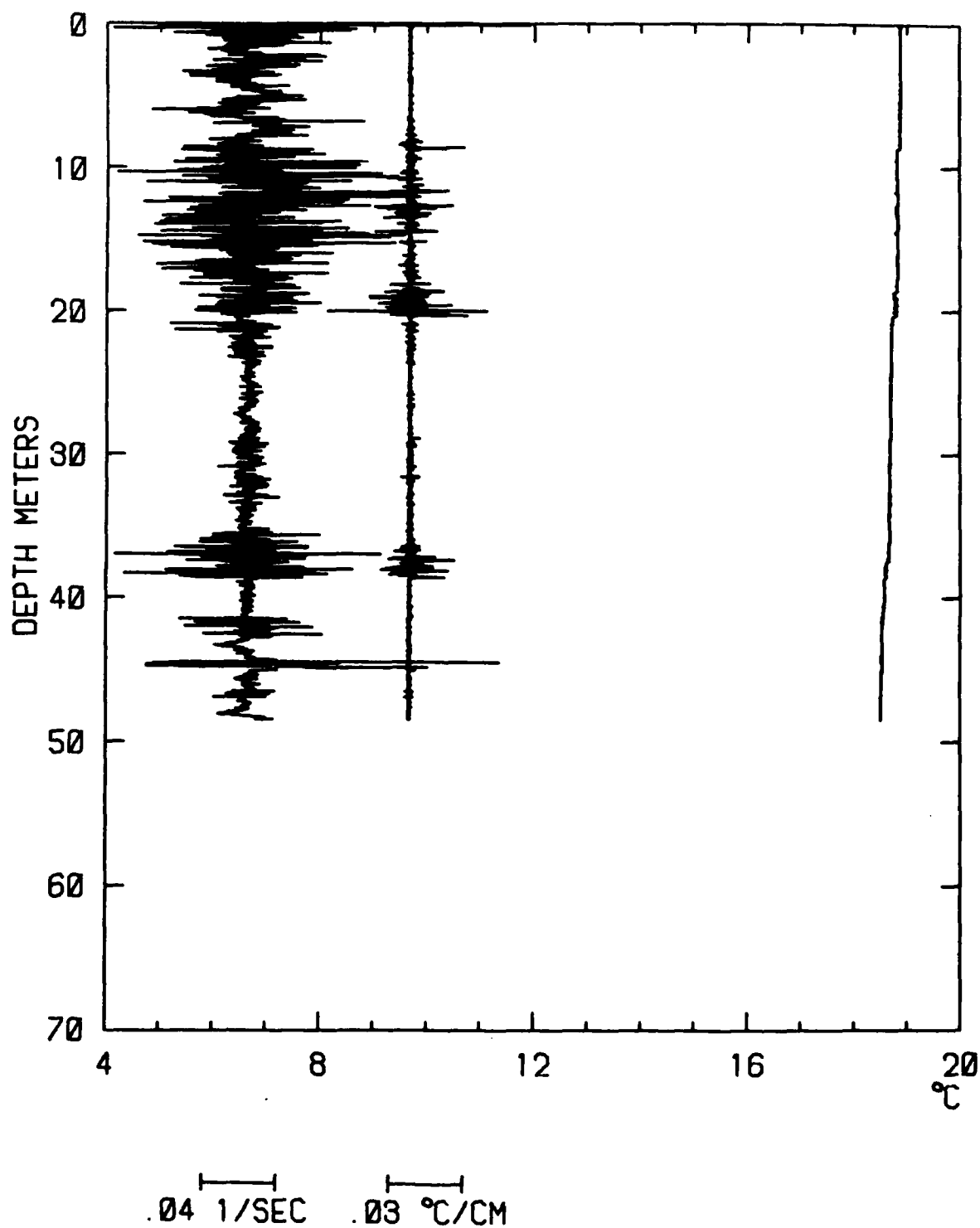
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FILE 1

30-OCT-83 01:06

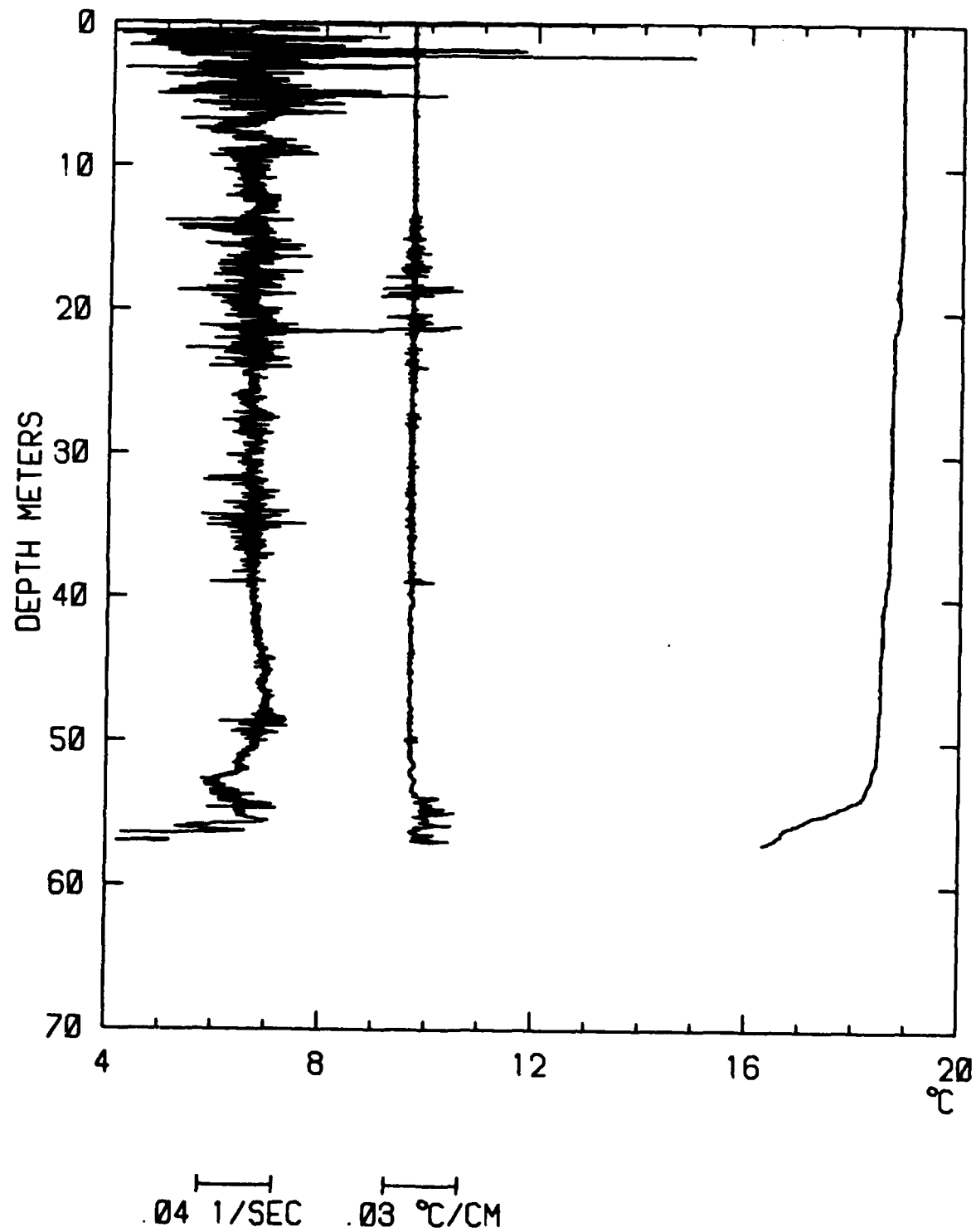
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FILE 2

04 1/SEC 03 °C/CM

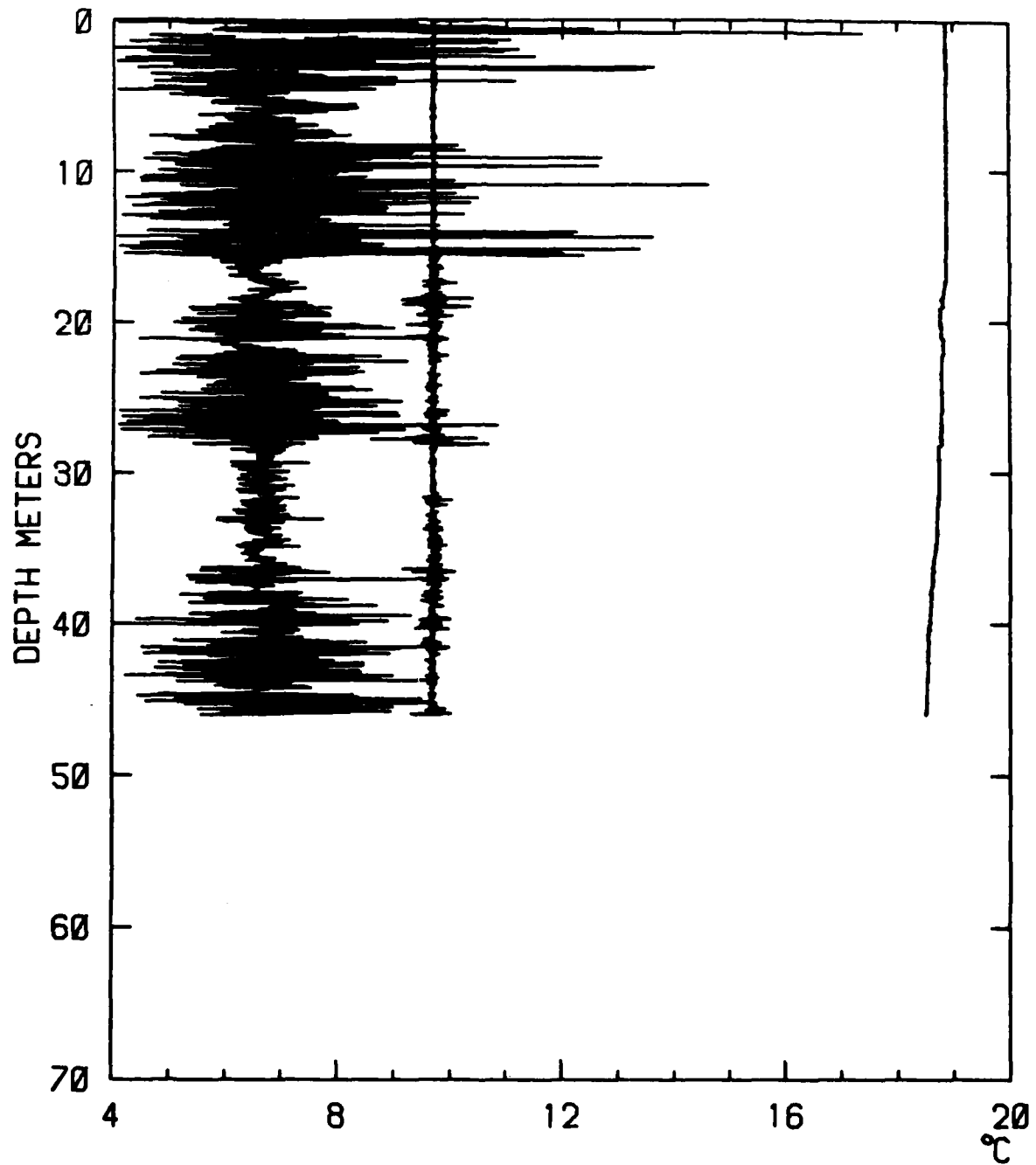
30-OCT-83 01:13

TAPE 33
FILE 3

30-OCT-83 01:23

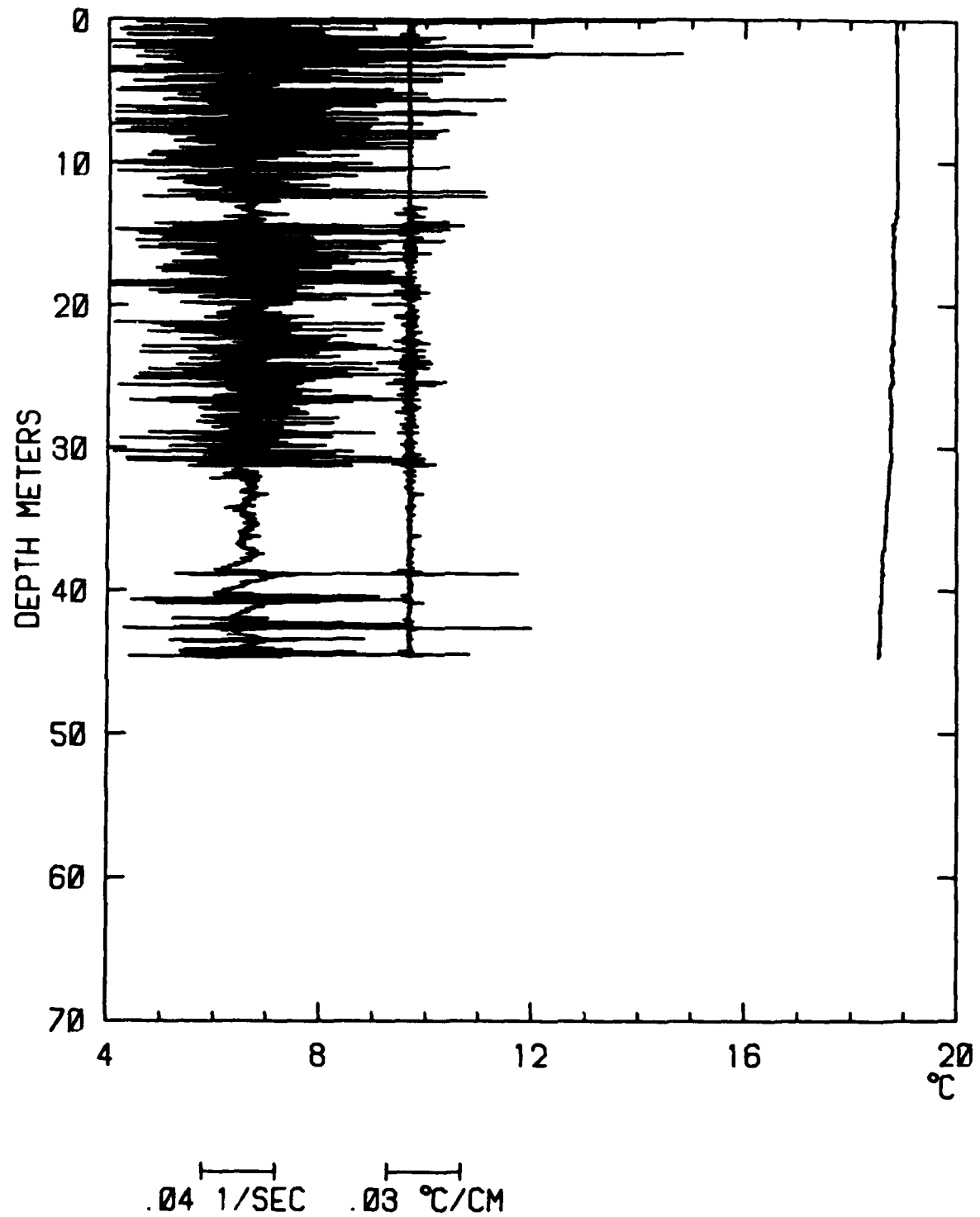
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FILE 4

30-OCT-83 01:32

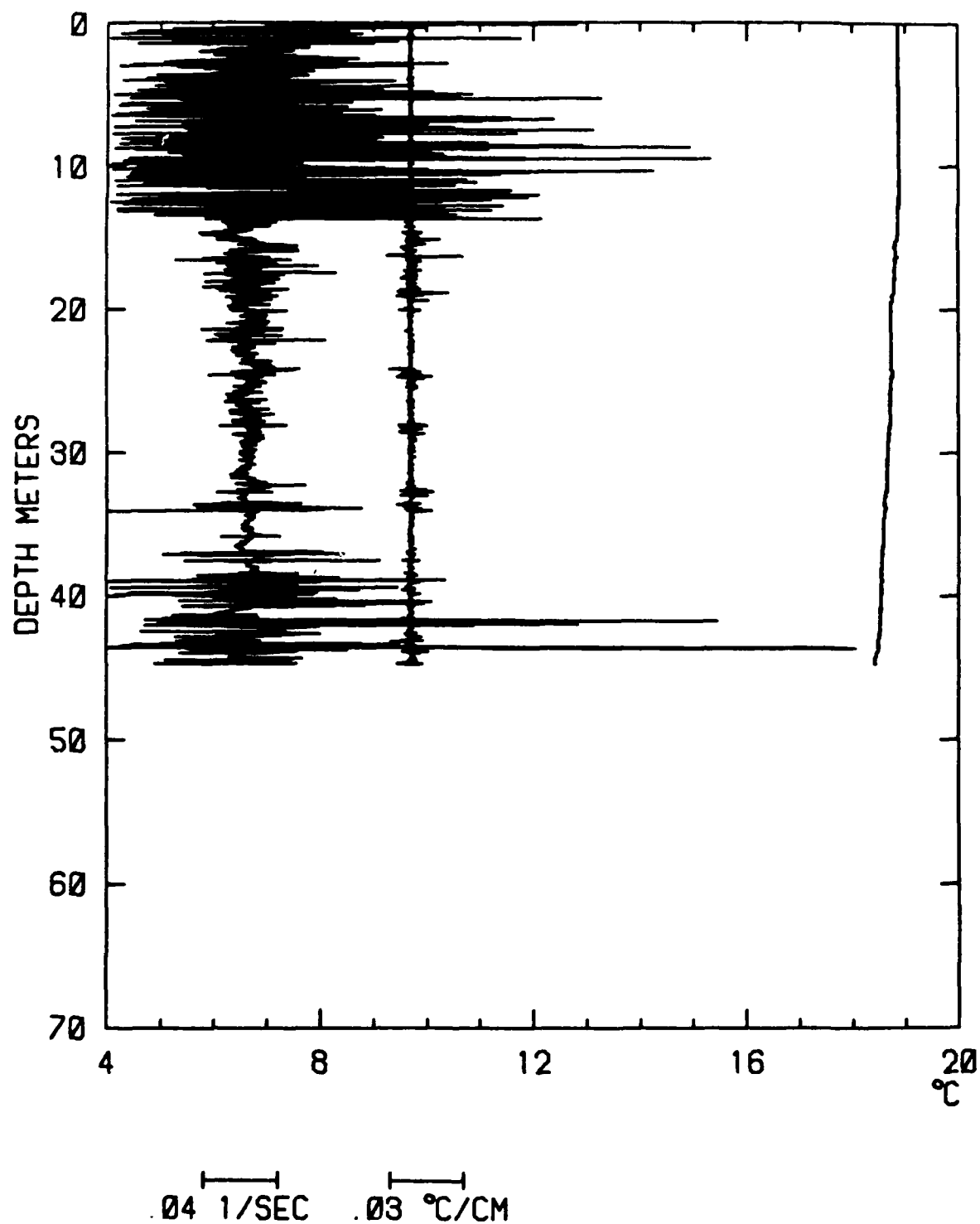
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FILE 5

04 1/SEC 03 °C/CM

30-OCT-83 01:46

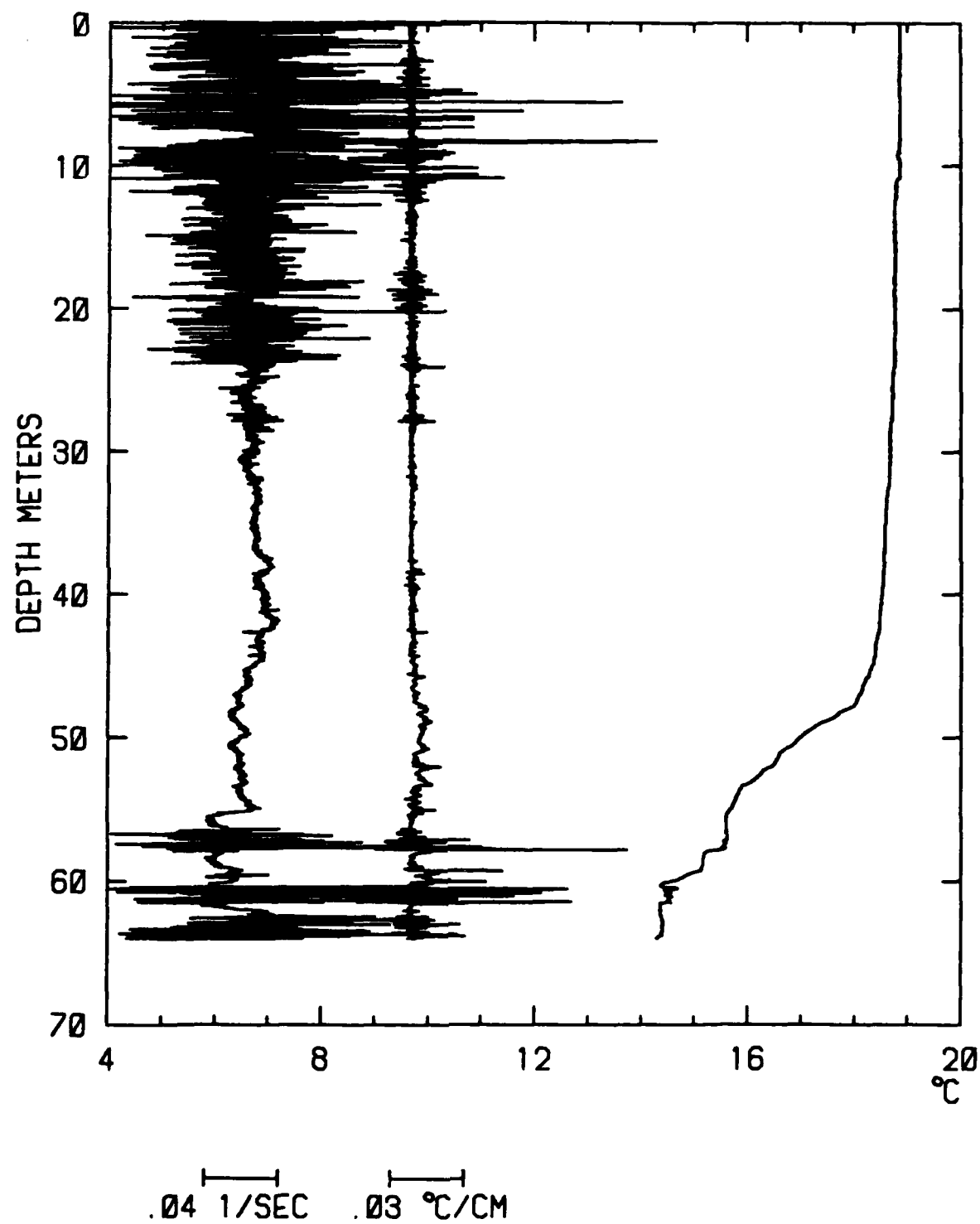
TAPE 33
FILE 7

30-OCT-83 01:52

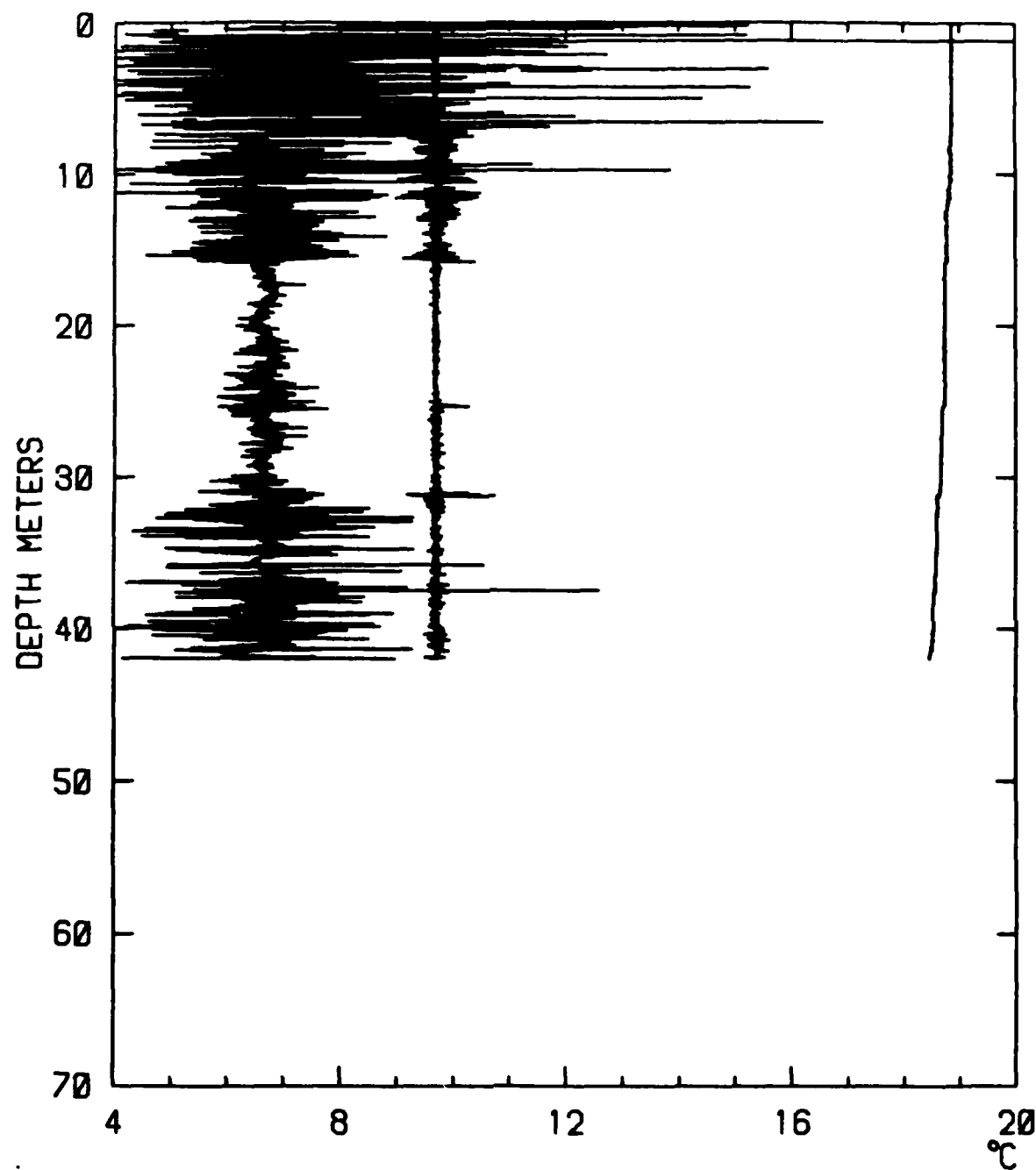
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FILE 8

110
30-OCT-83 01:58

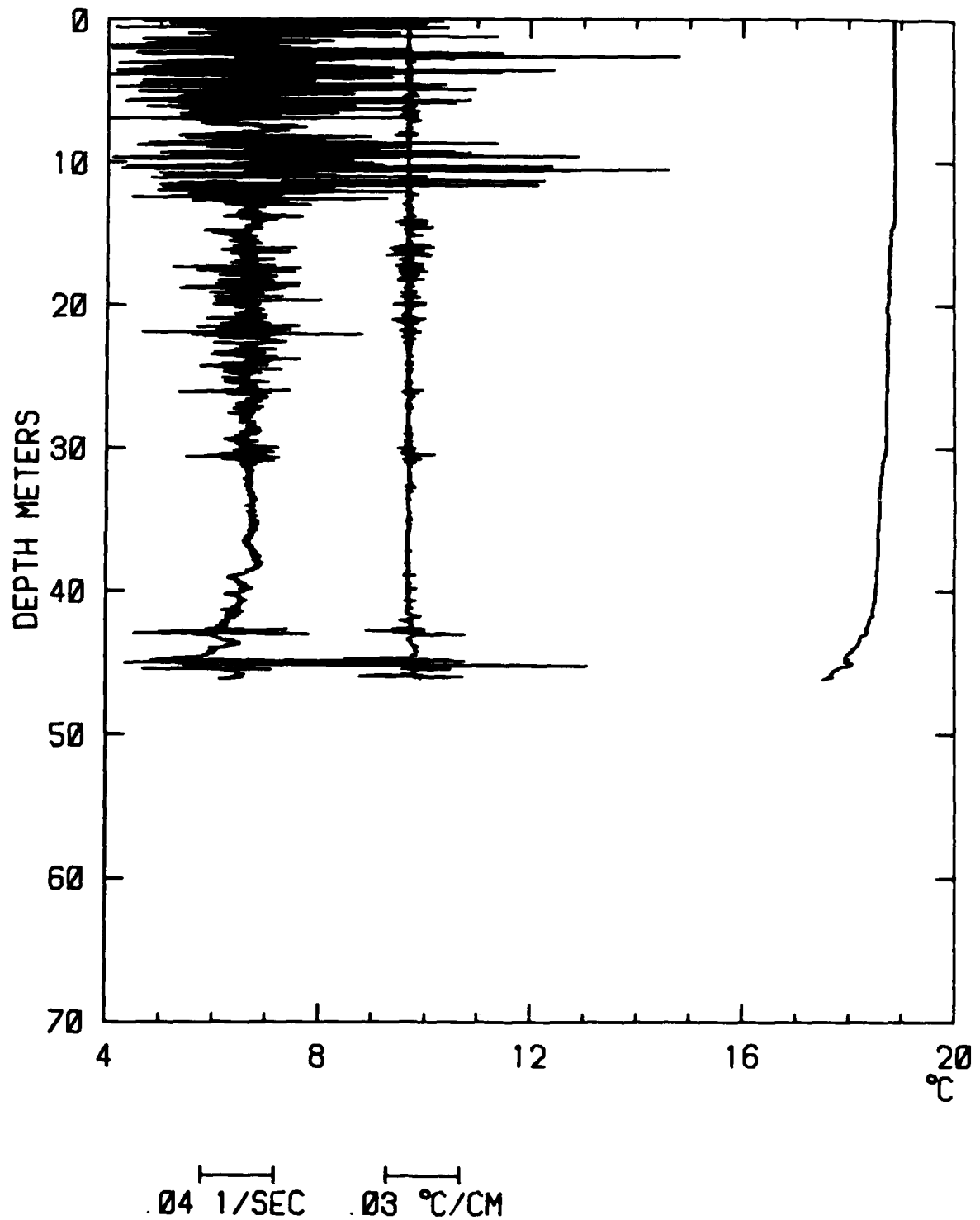
TAPE 33
FILE 9



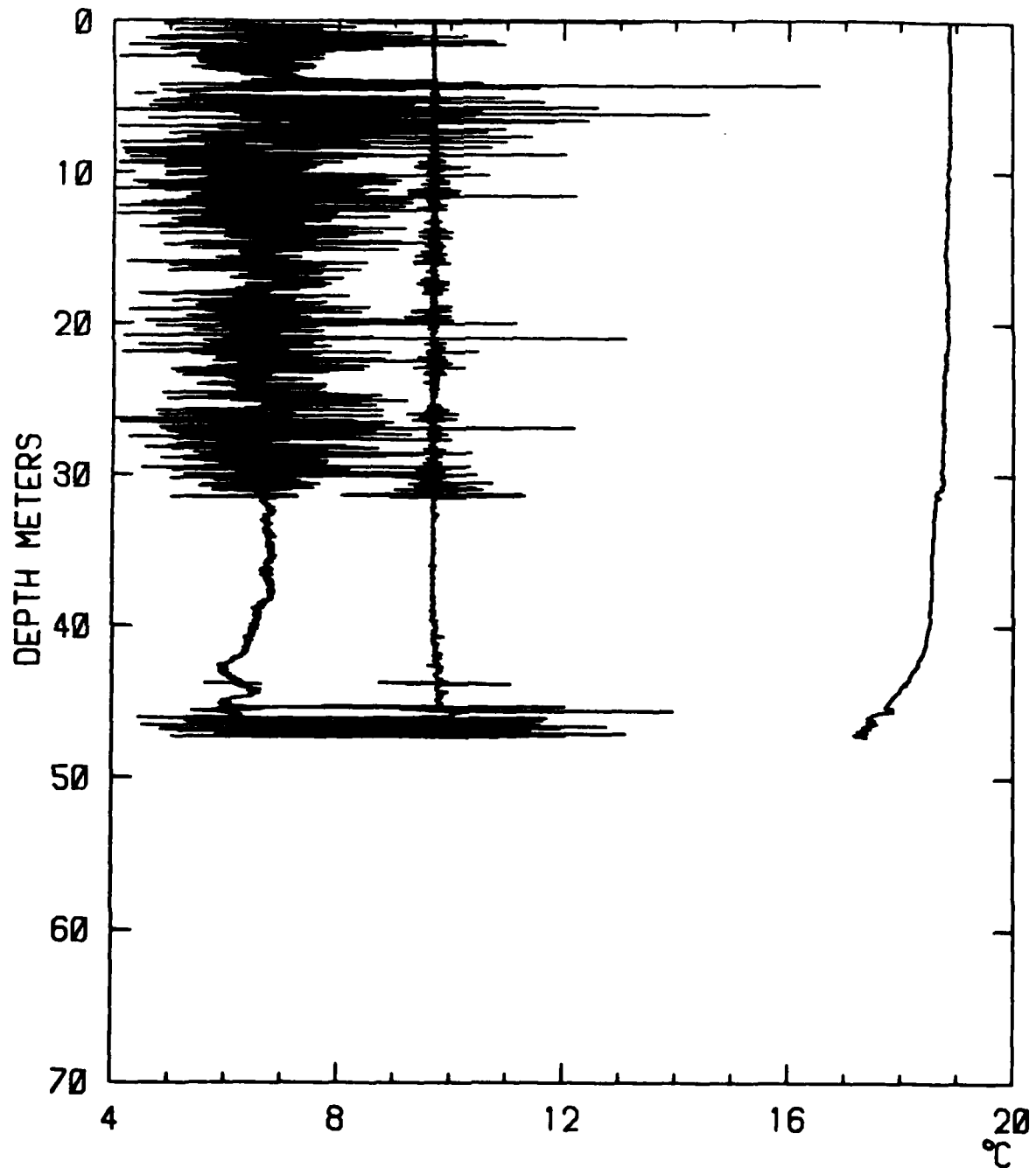
30-OCT-83 02:05

TAPE 33
FILE 10

30-OCT-83 02:17

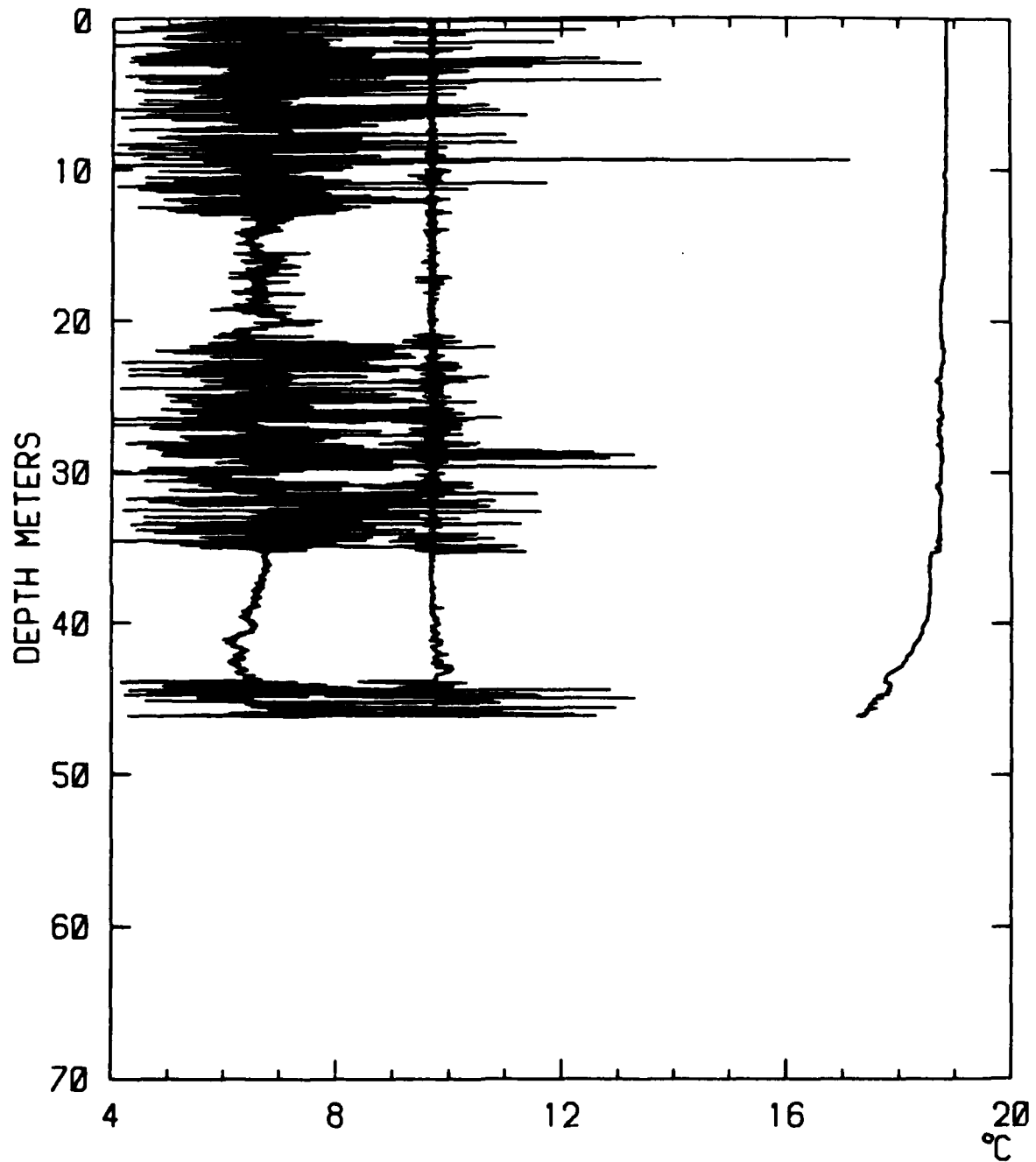
TAPE 33
FILE 12

30-OCT-83 02:23

TAPE 33
FILE 13

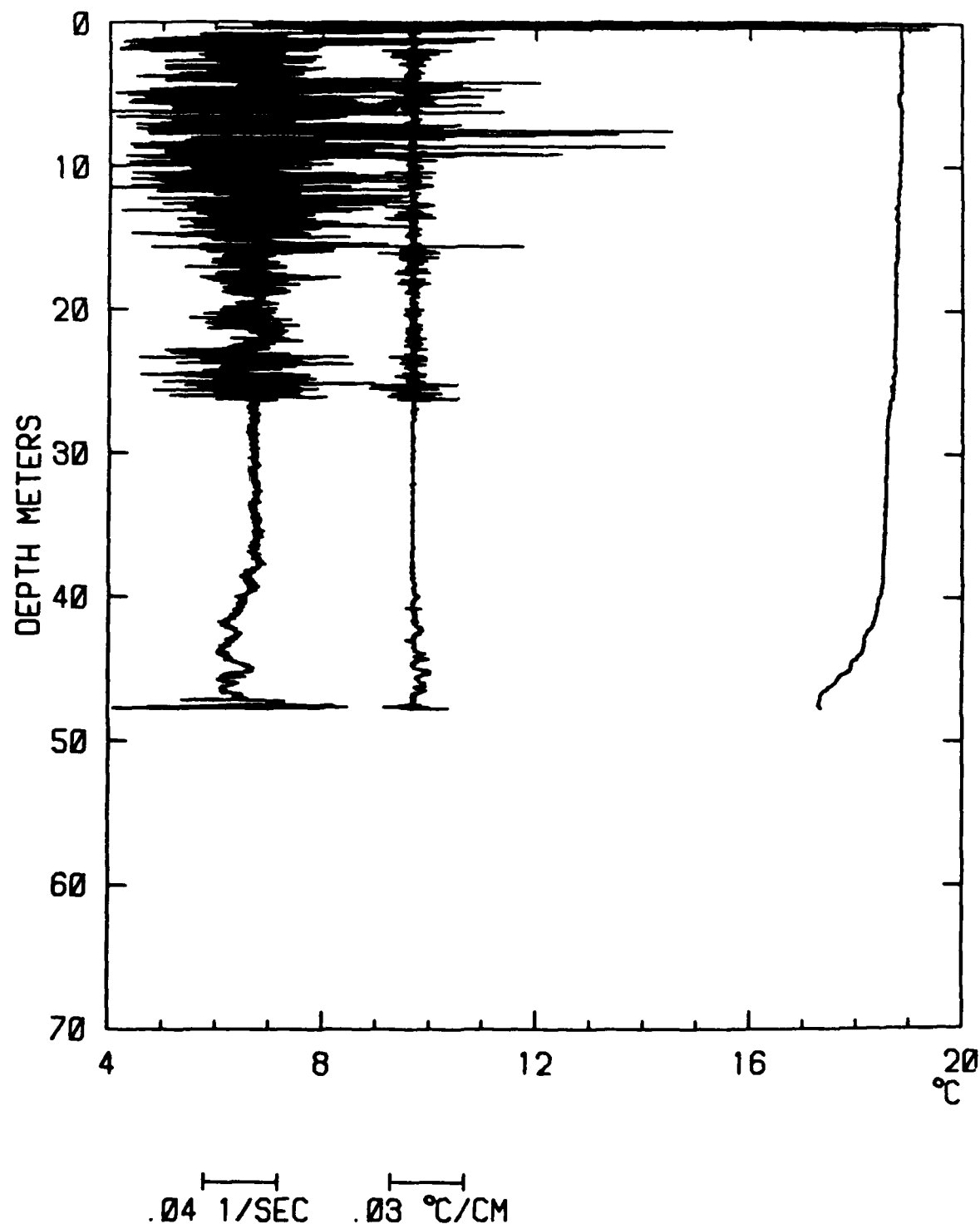
04 1/SEC 03 °C/CM

30-OCT-83 02:27

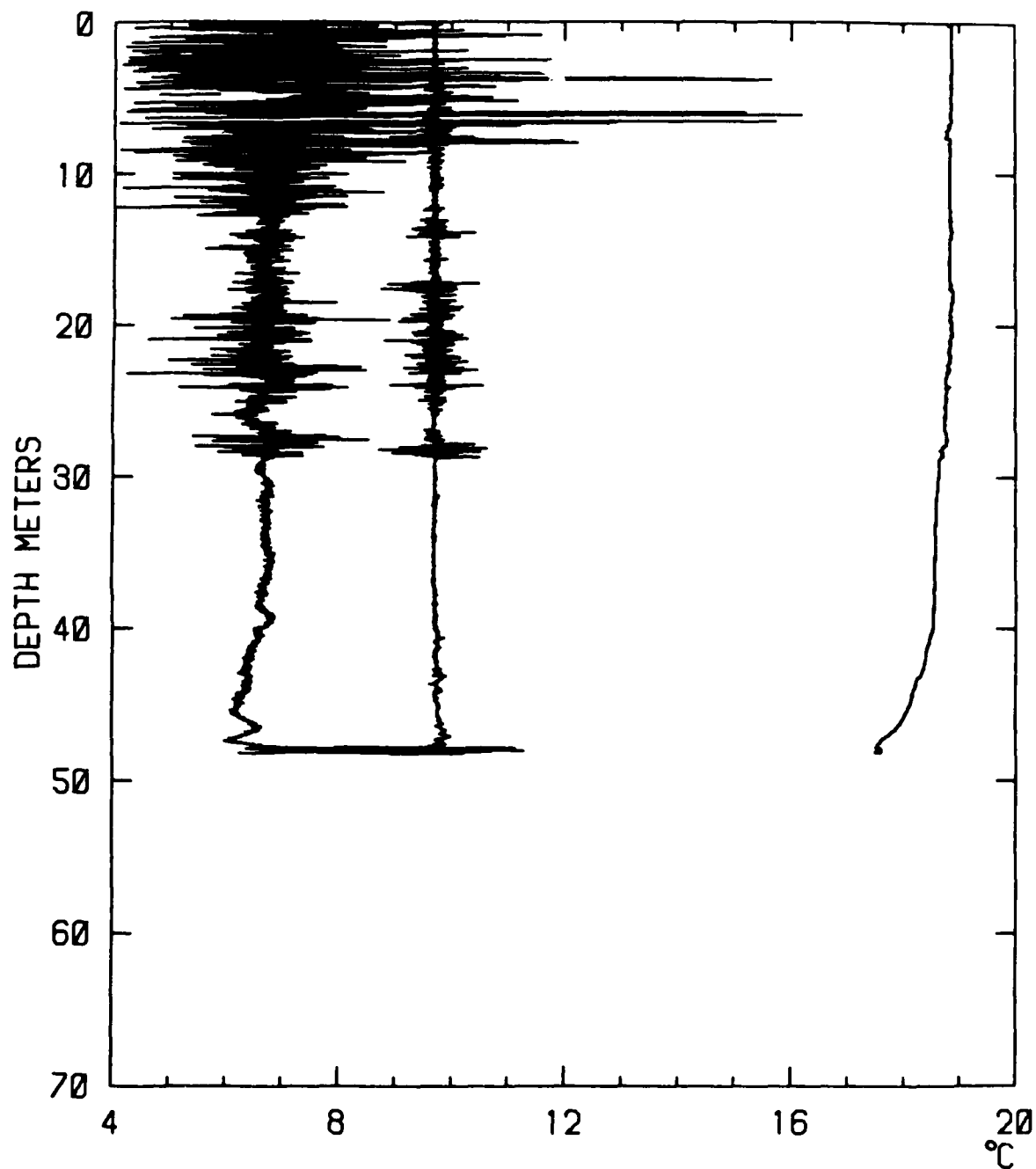
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FILE 14

.04 1/SEC .03 °C/CM

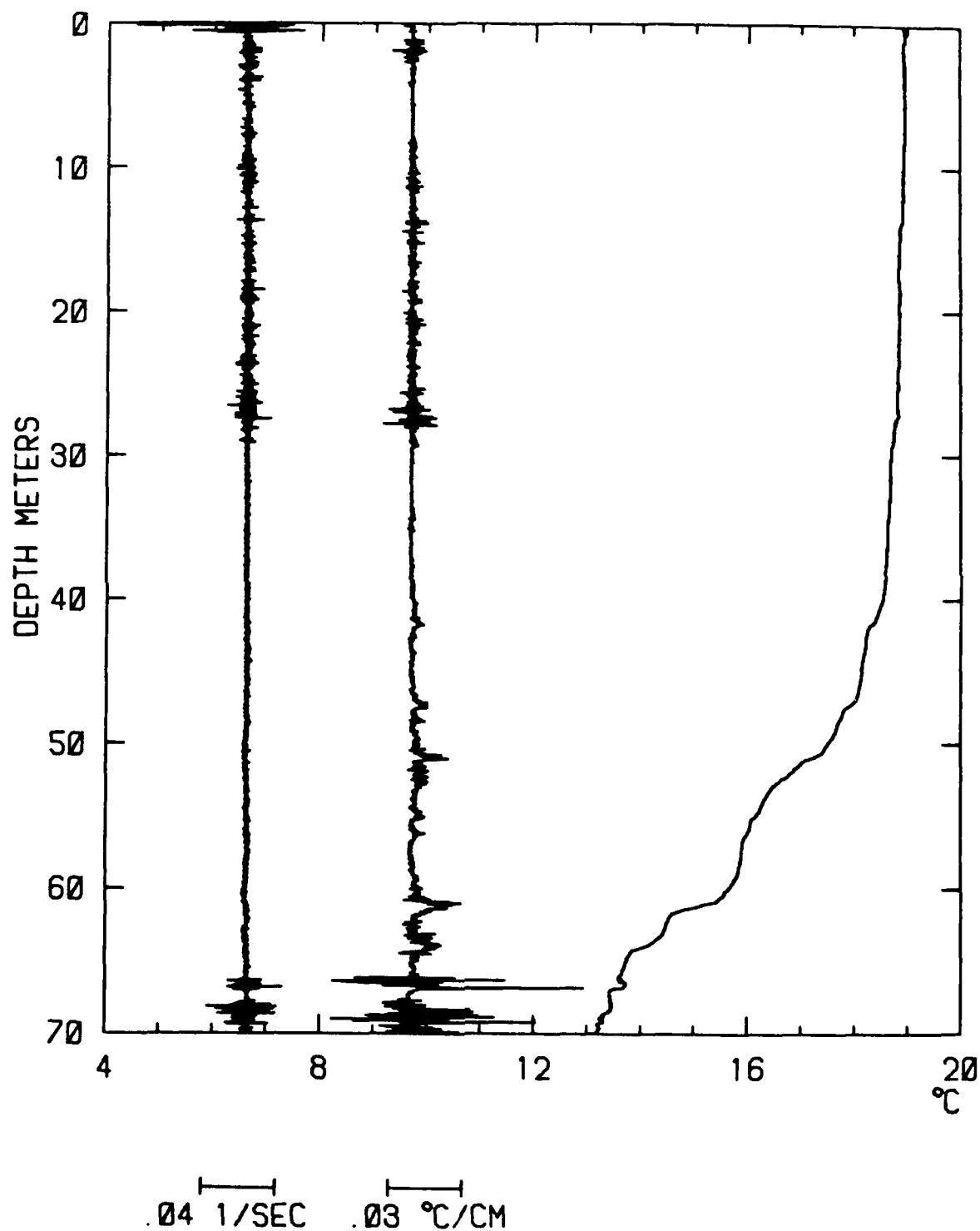
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TAPE 33
FILE 15

30-OCT-83 02:39

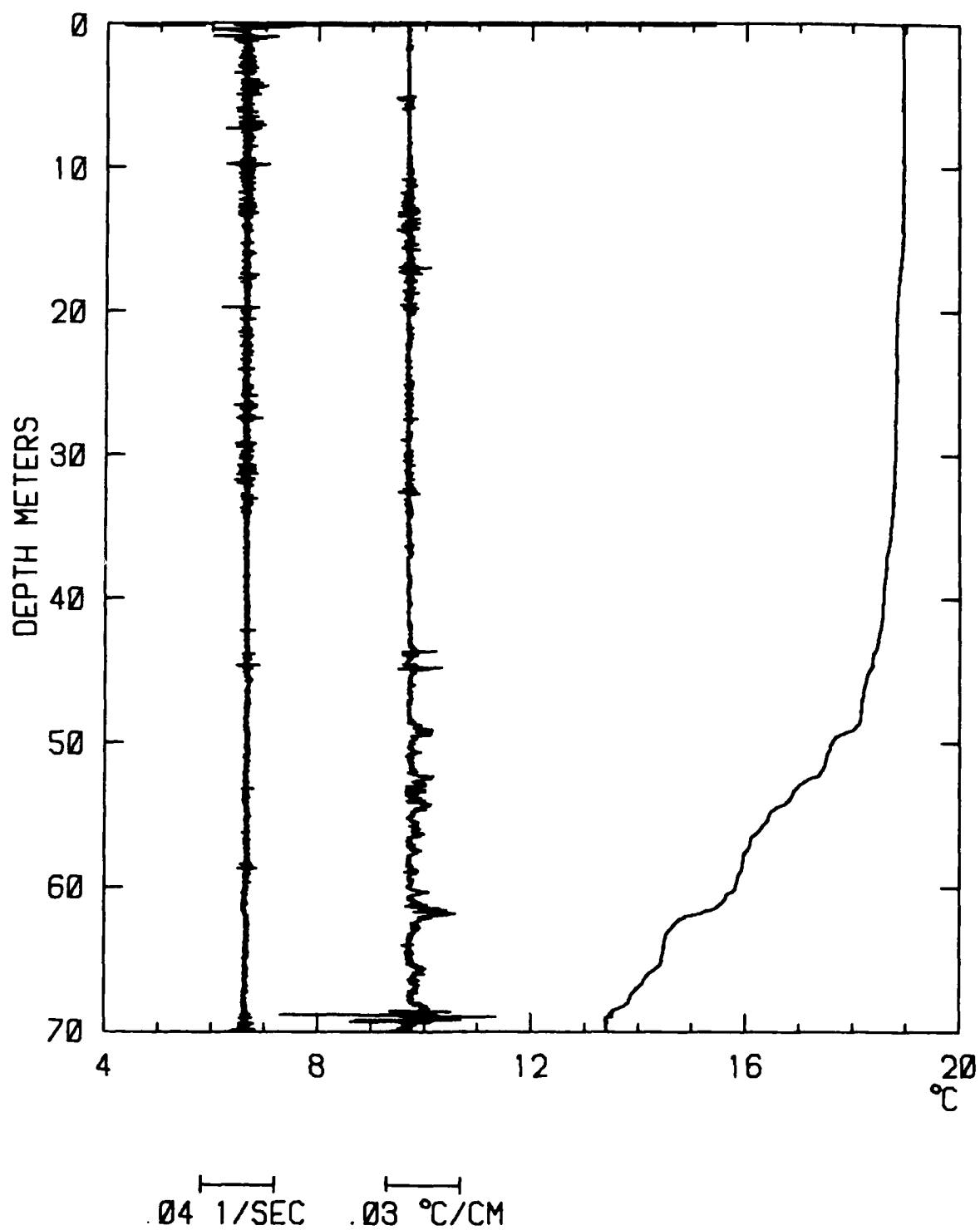
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30-OCT-83 03:03

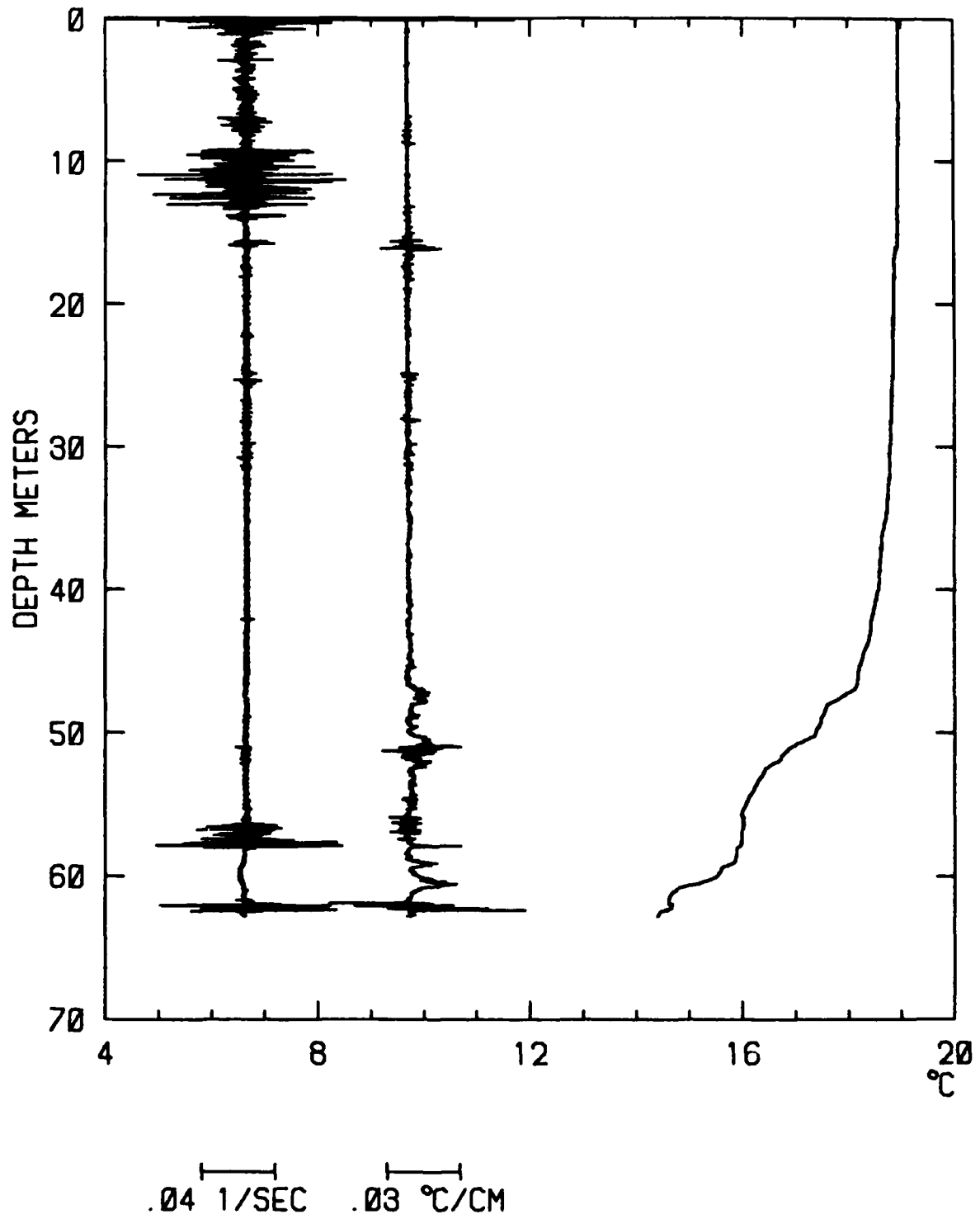
TAPE 33
FILE 17

30-OCT-83 03:14 ¹¹⁸

TAPE 33
FILE 18



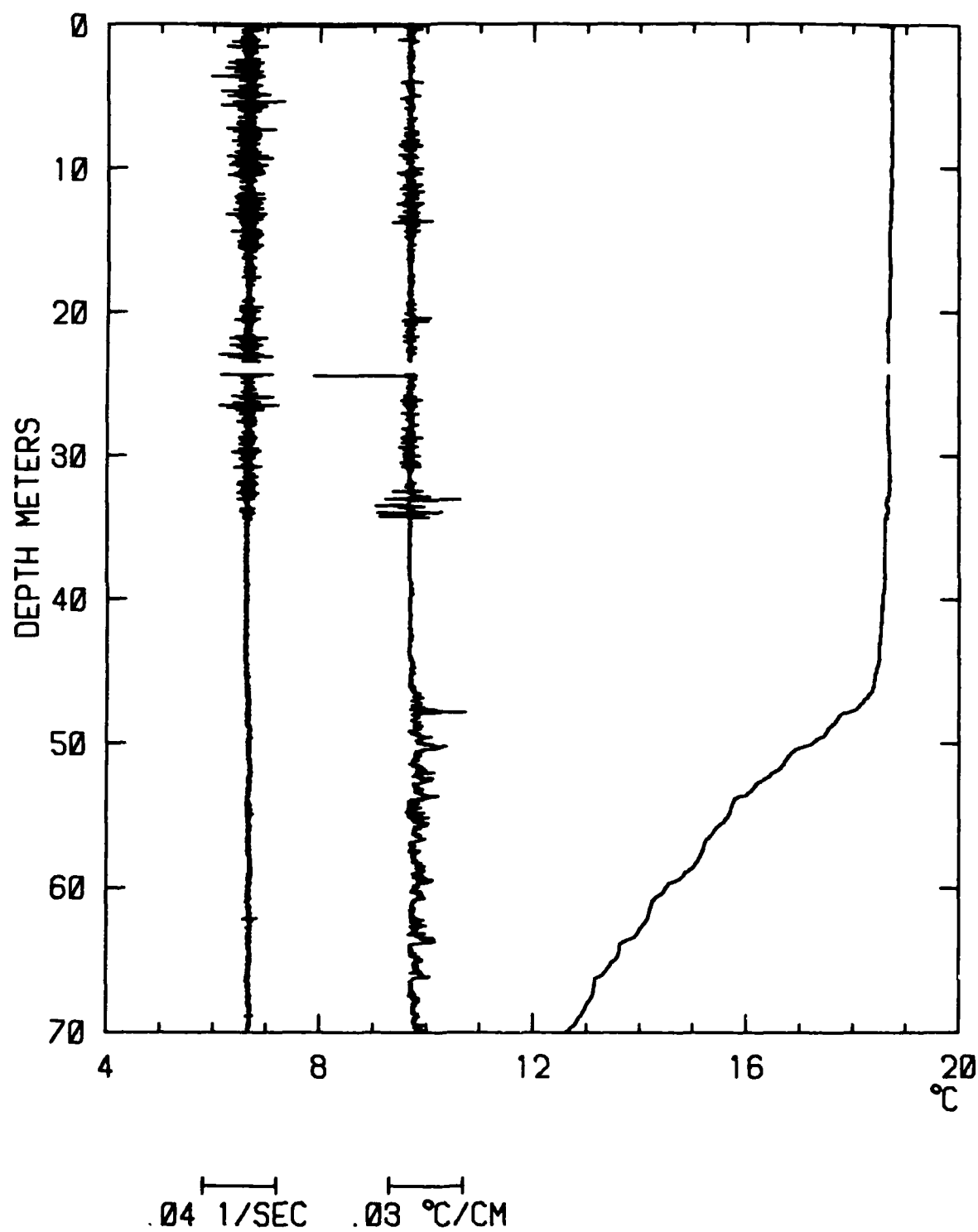
30-OCT-83 03:21

TAPE 33
FILE 19

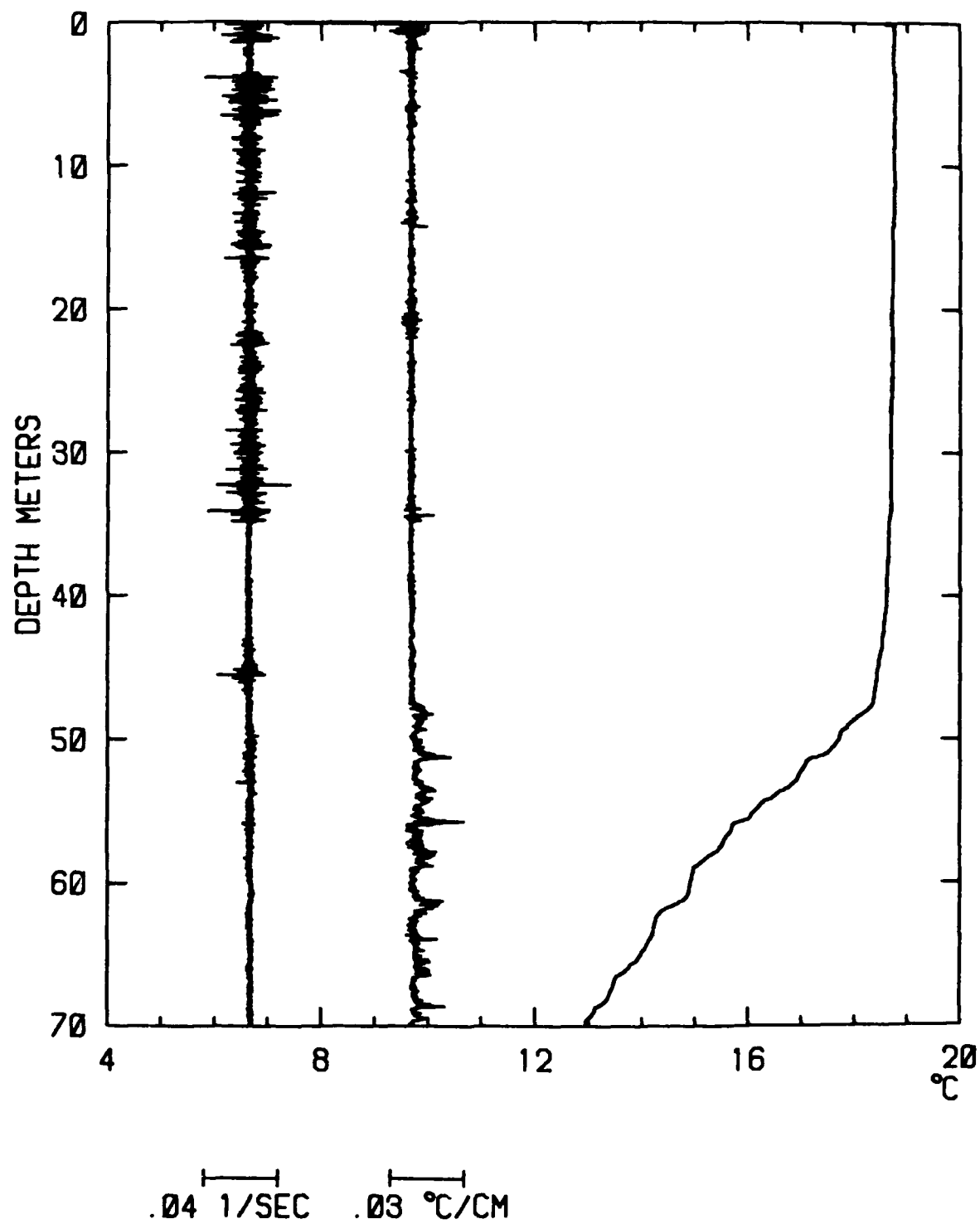
30-OCT-83 17:49

120

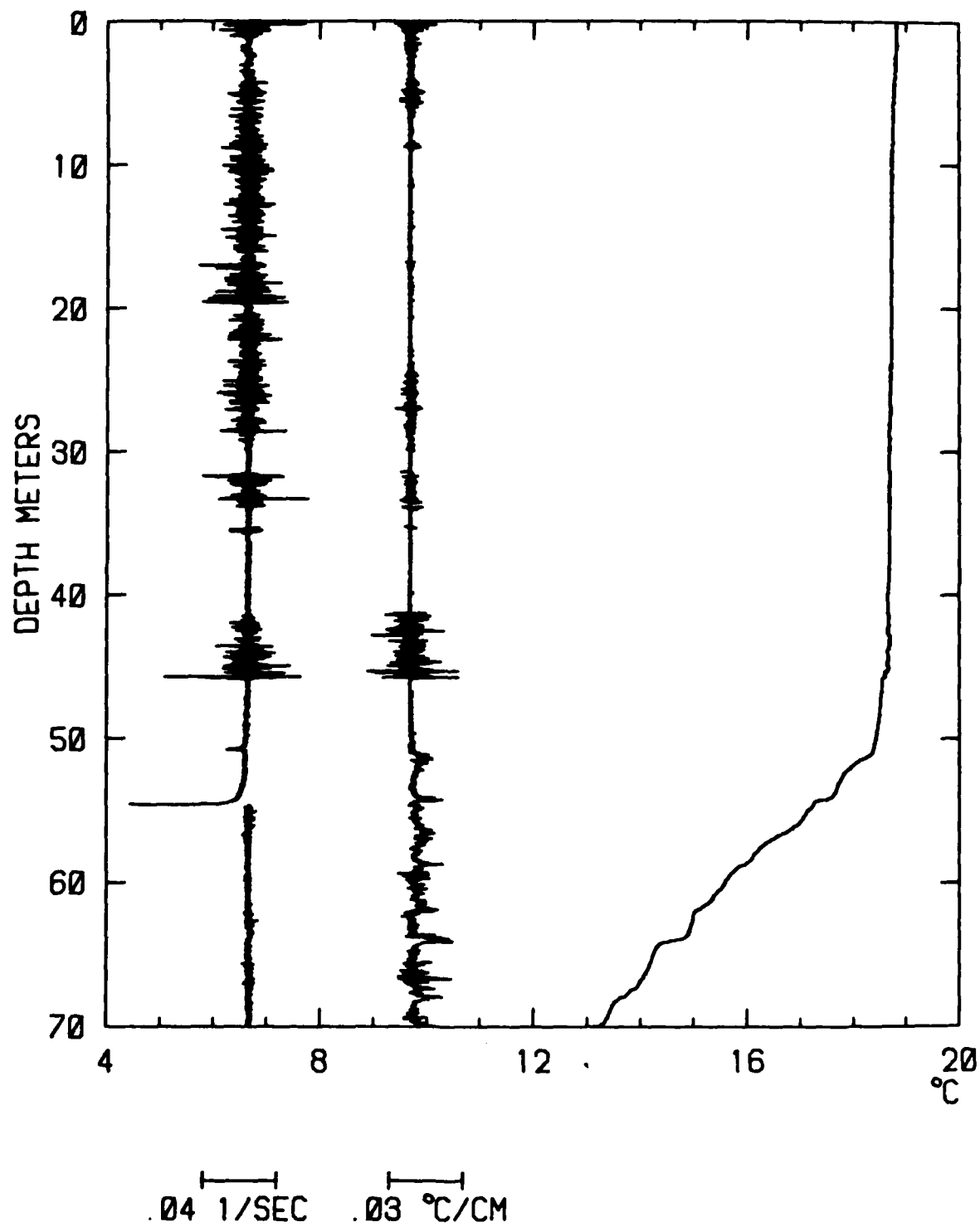
TAPE 34
FILE 1



30-OCT-83 18:07

TAPE 34
FILE 2

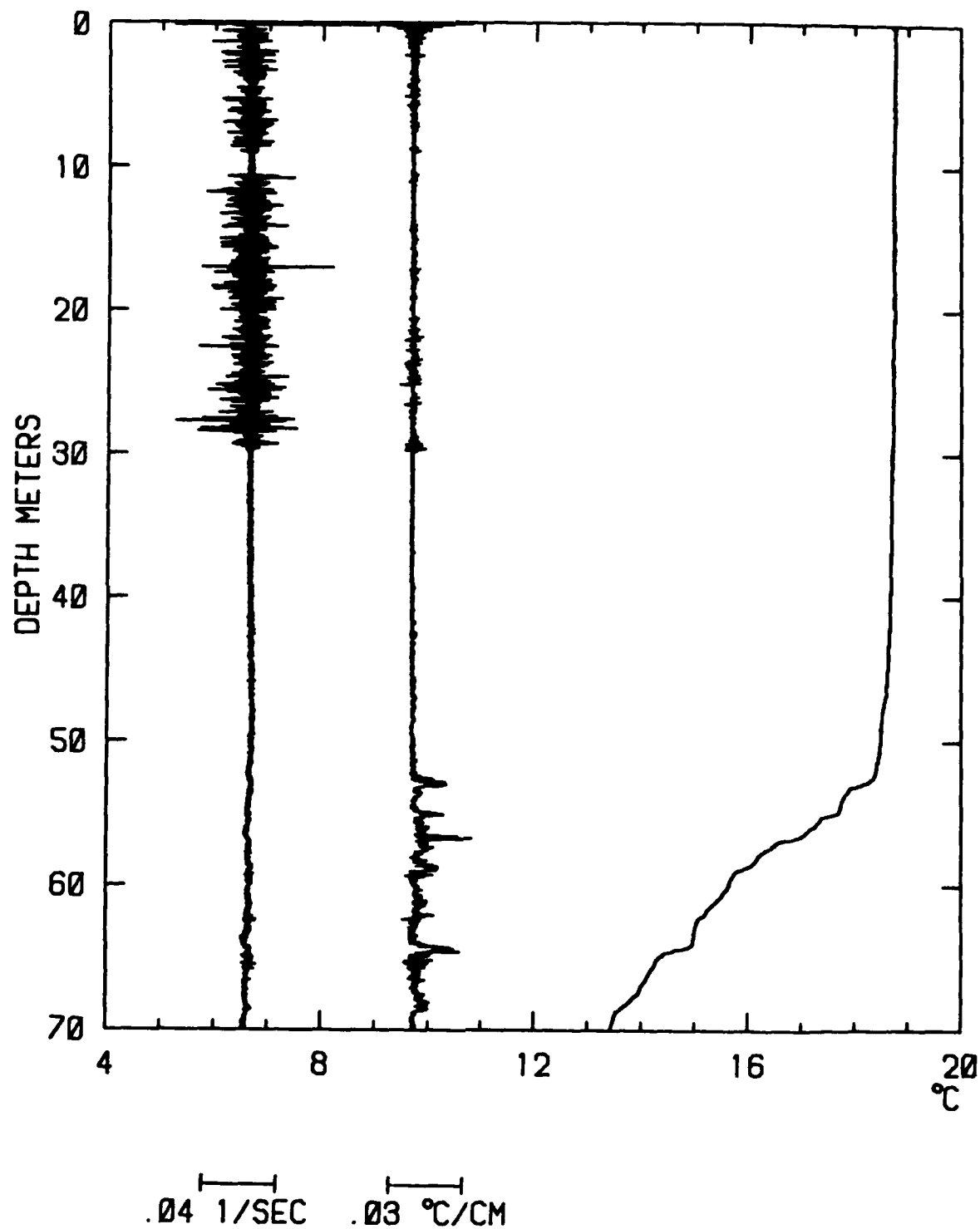
30-OCT-83 18:16

TAPE 34
FILE 3

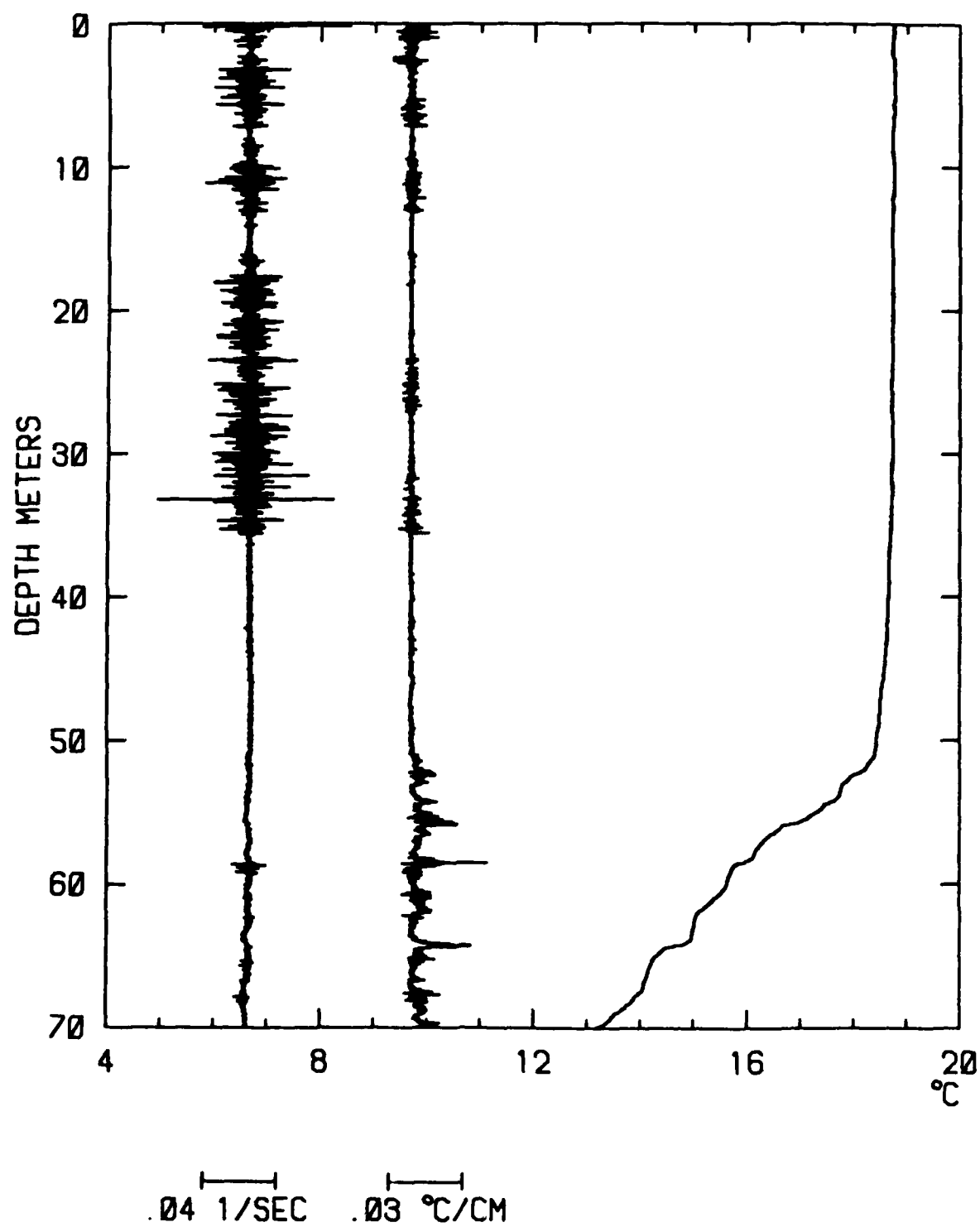
30-OCT-83 18:26

123

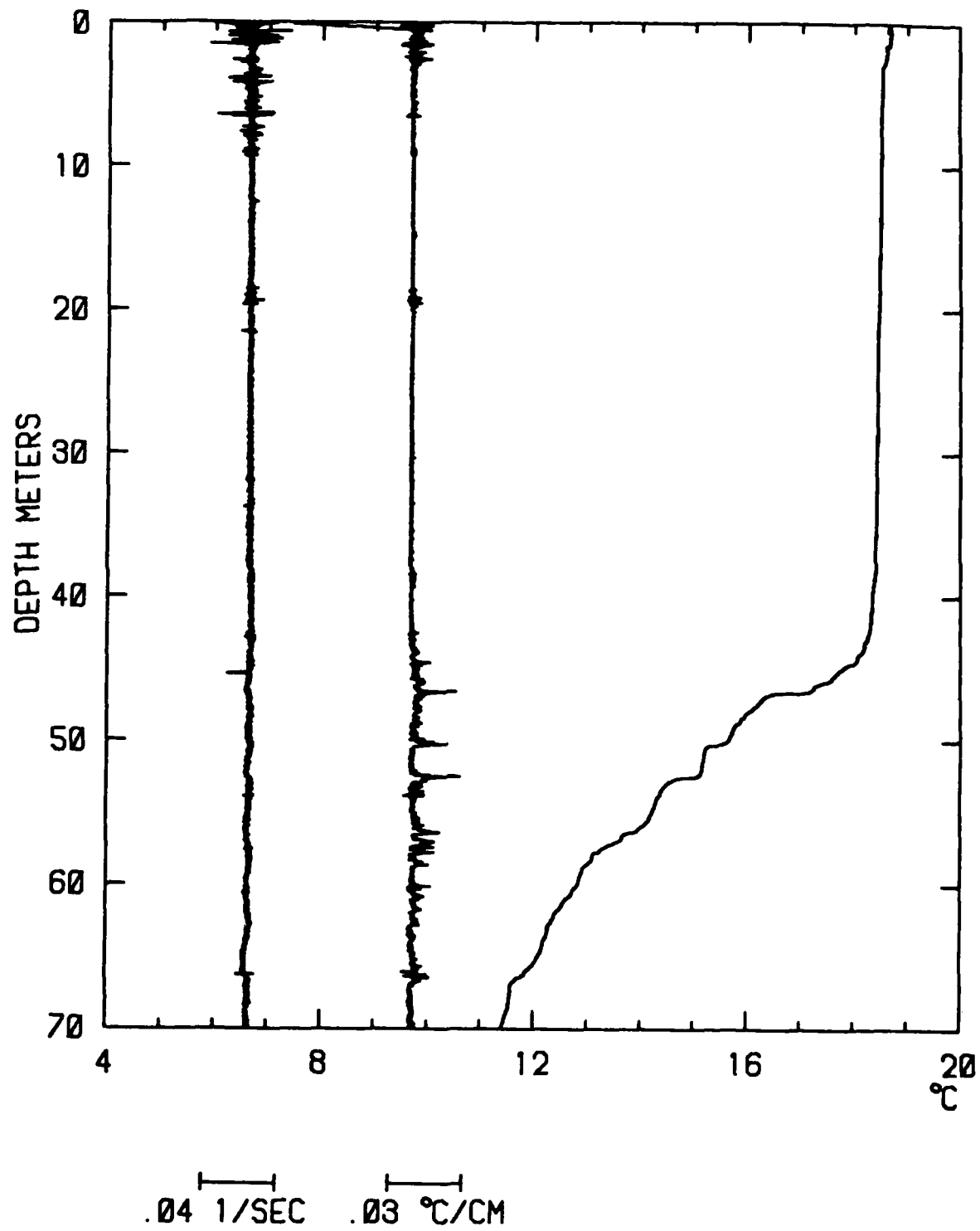
TAPE 34
FILE 4



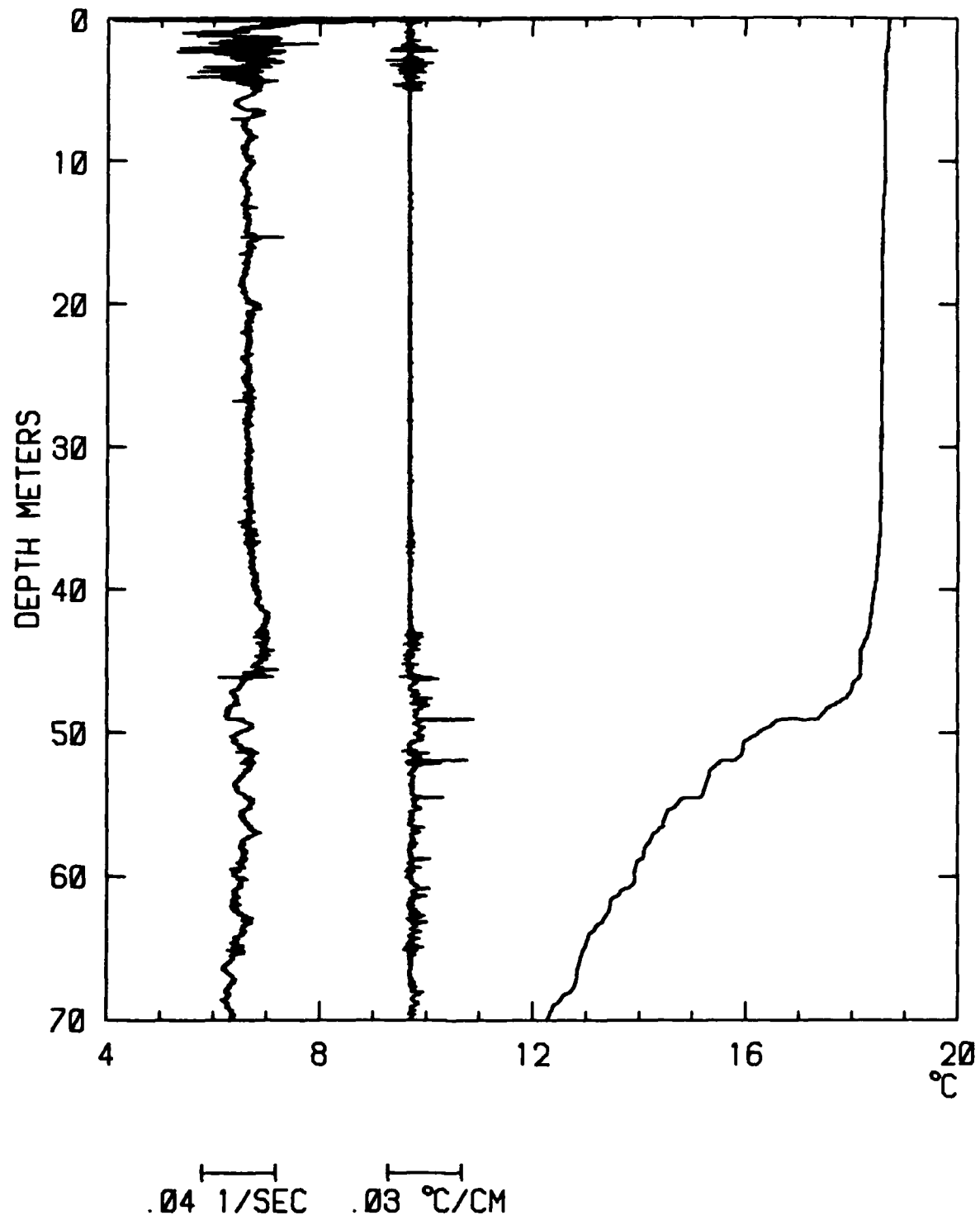
30-OCT-83 18:33

TAPE 34
FILE 5

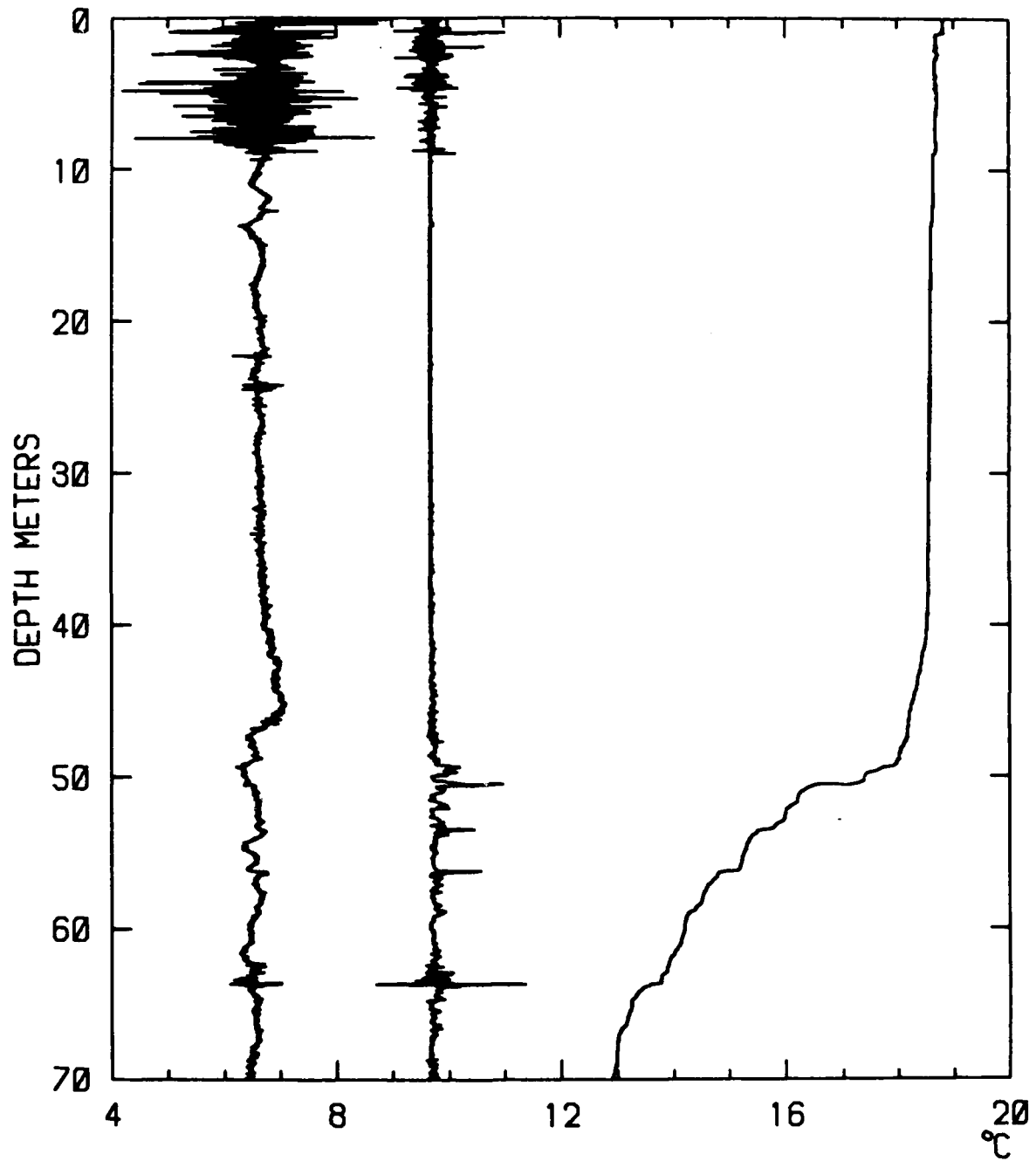
30-OCT-83

TAPE 34
FILE 7

30-OCT-83 20:23

TAPE 34
FILE 8

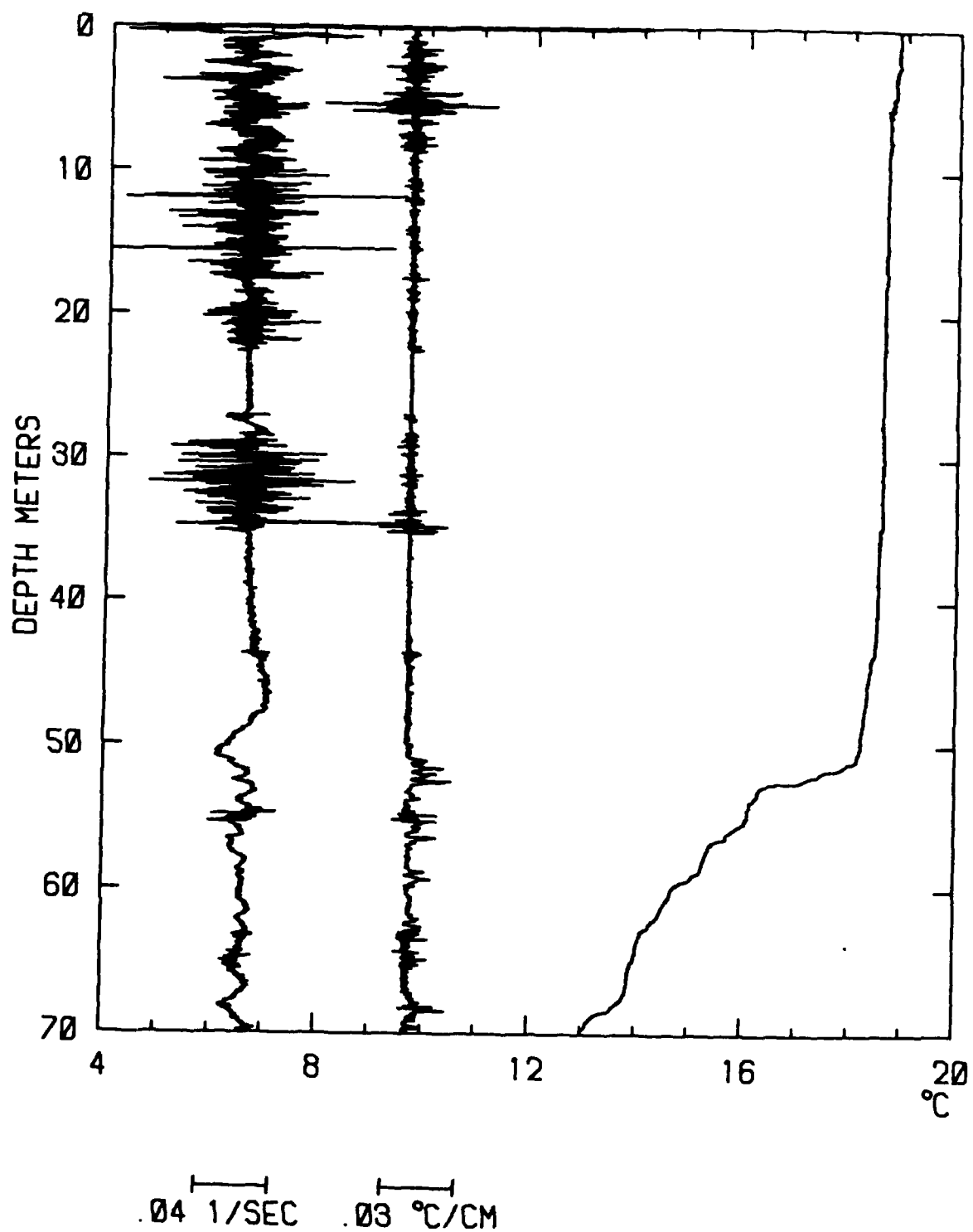
30-OCT-83 20:32

TAPE 34
FILE 9

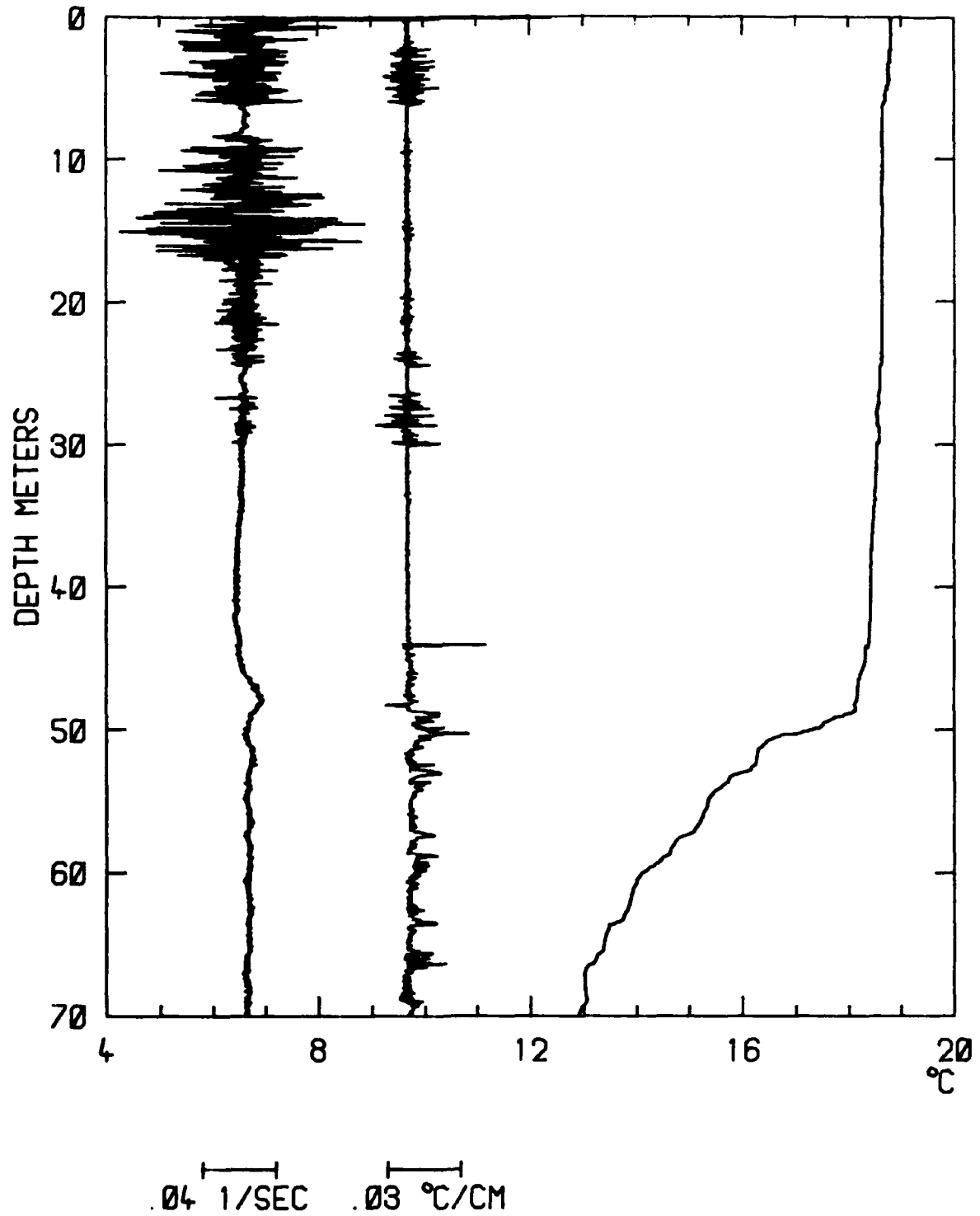
.04 1/SEC .03 °C/CM

128
30-OCT-83 20:49

TAPE 34
FILE 10

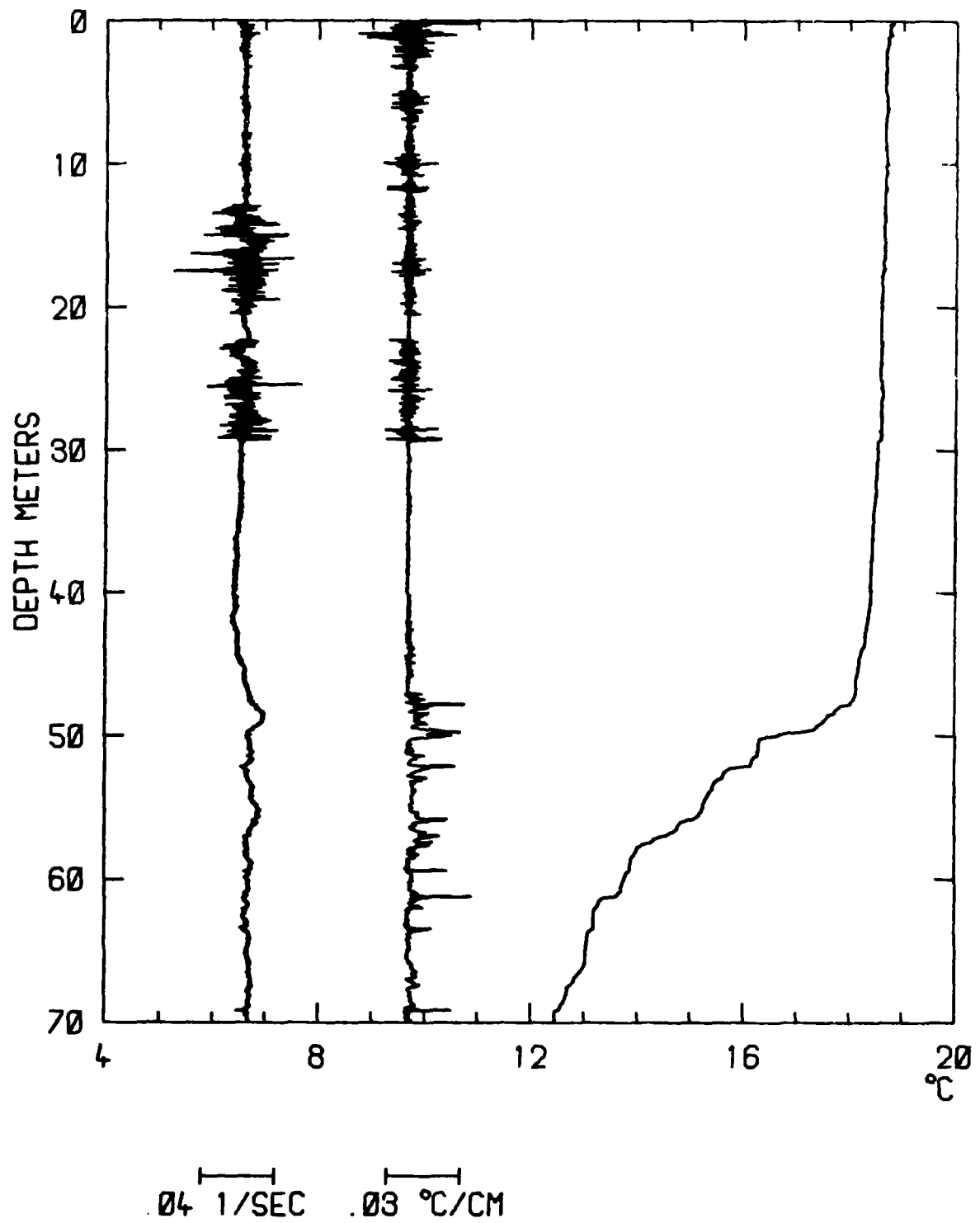


30-OCT-83 21:10

TAPE 35
FILE 11

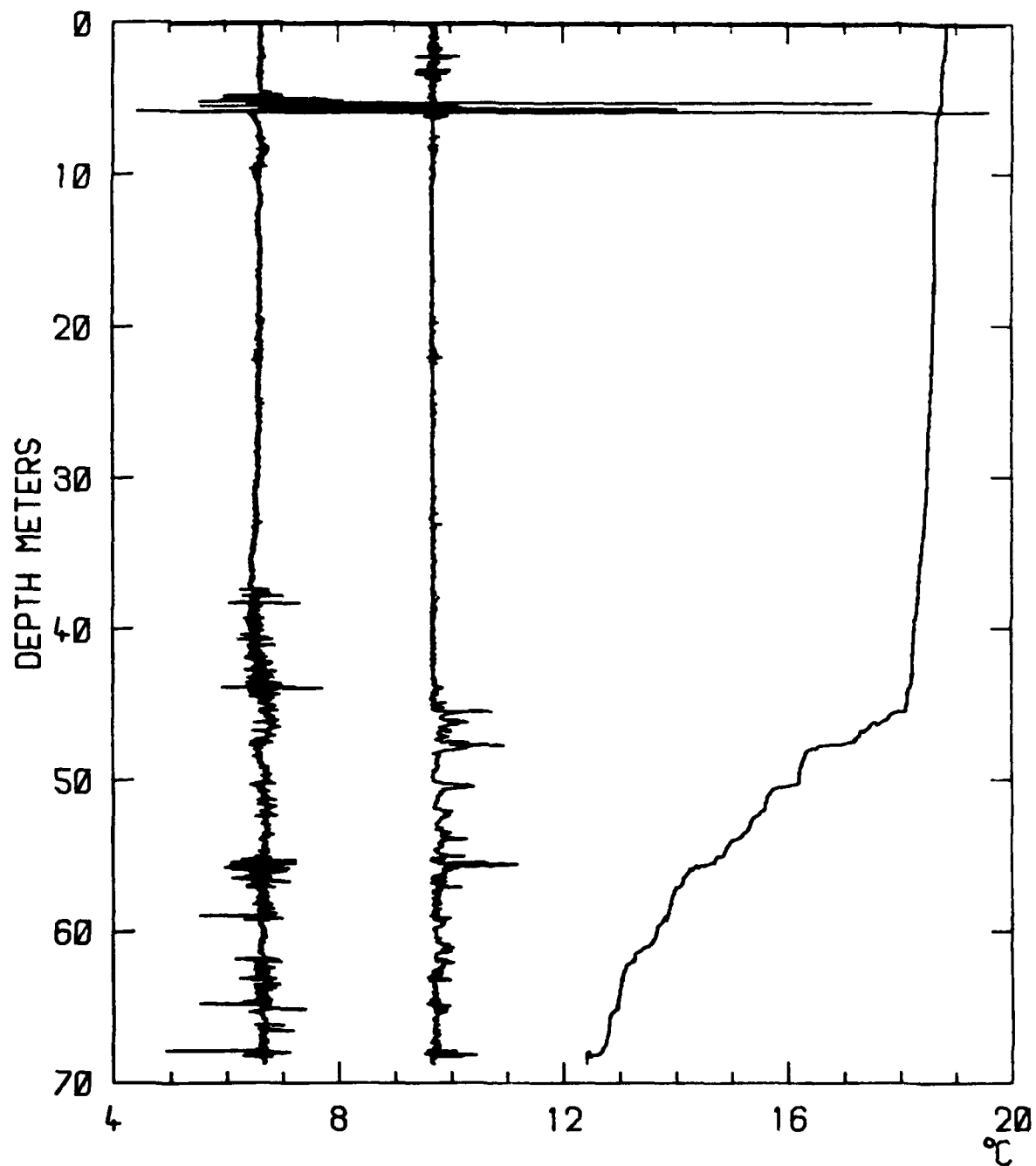
30-OCT-83 21:18¹³⁰

TAPE 35
FILE 12



30-OCT-83 21:35 131

TAPE 35
FILE 13

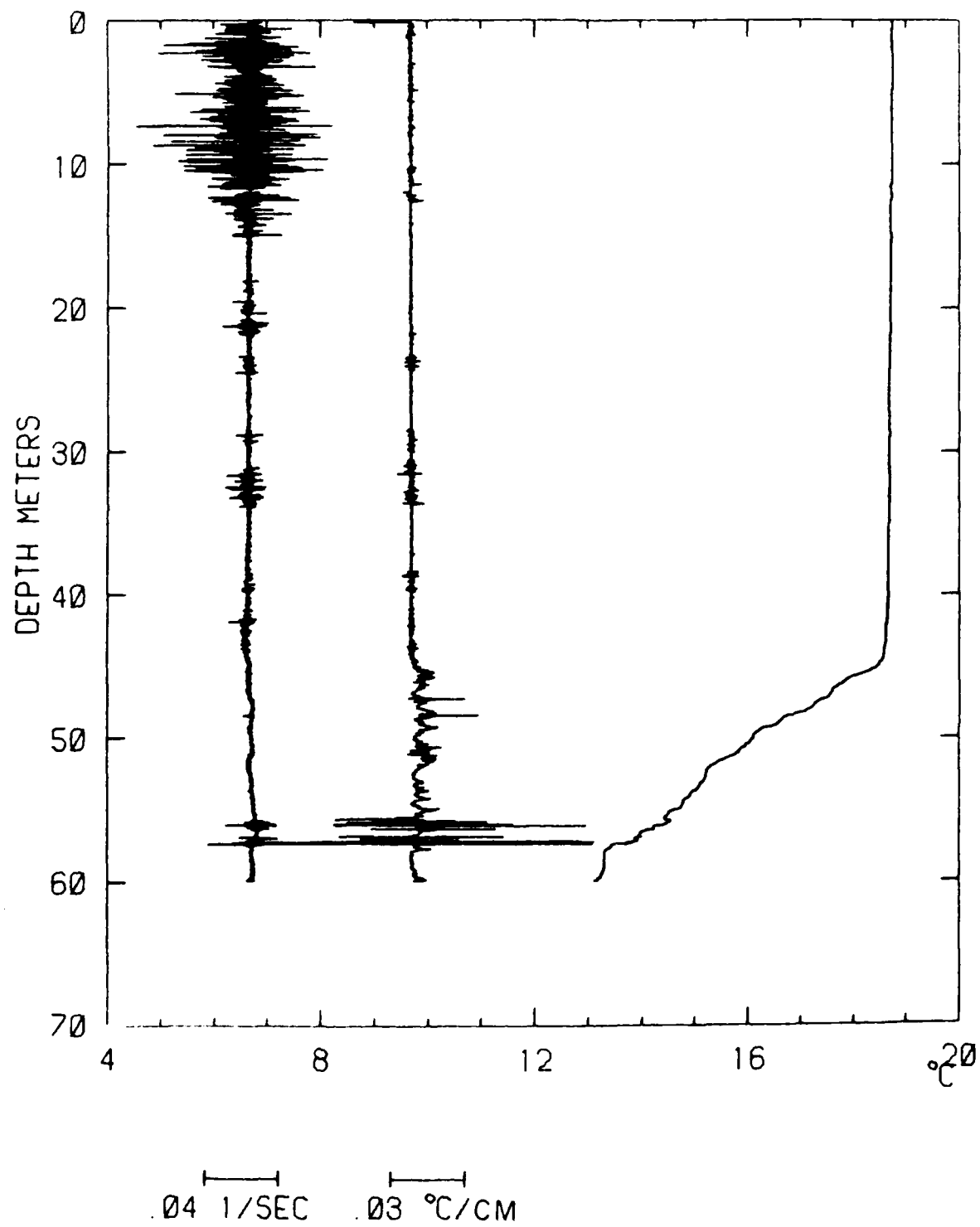


04 1/SEC .03 °C/CM

3-NOV-83 18:38

152

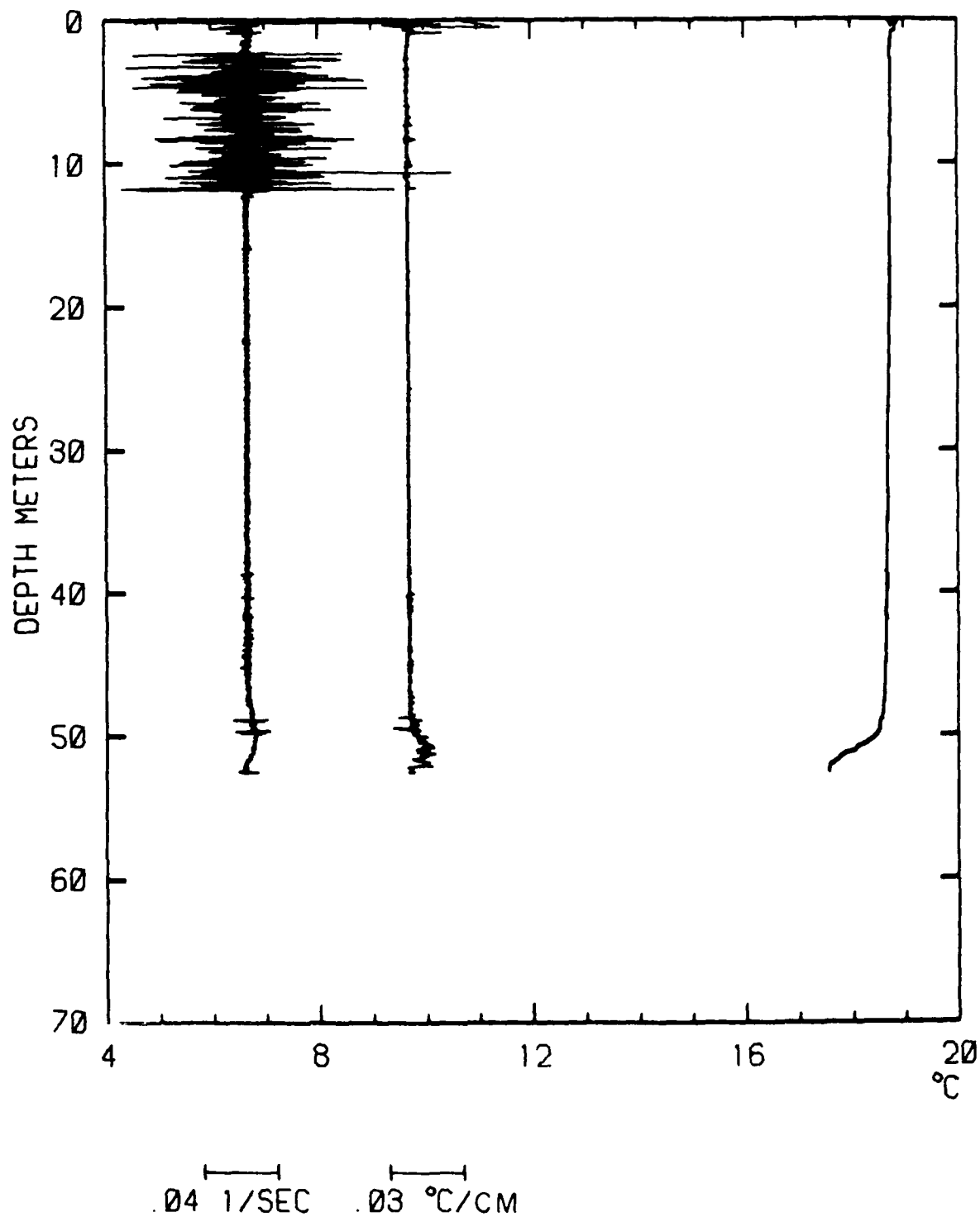
TAPE 50
FILE 2



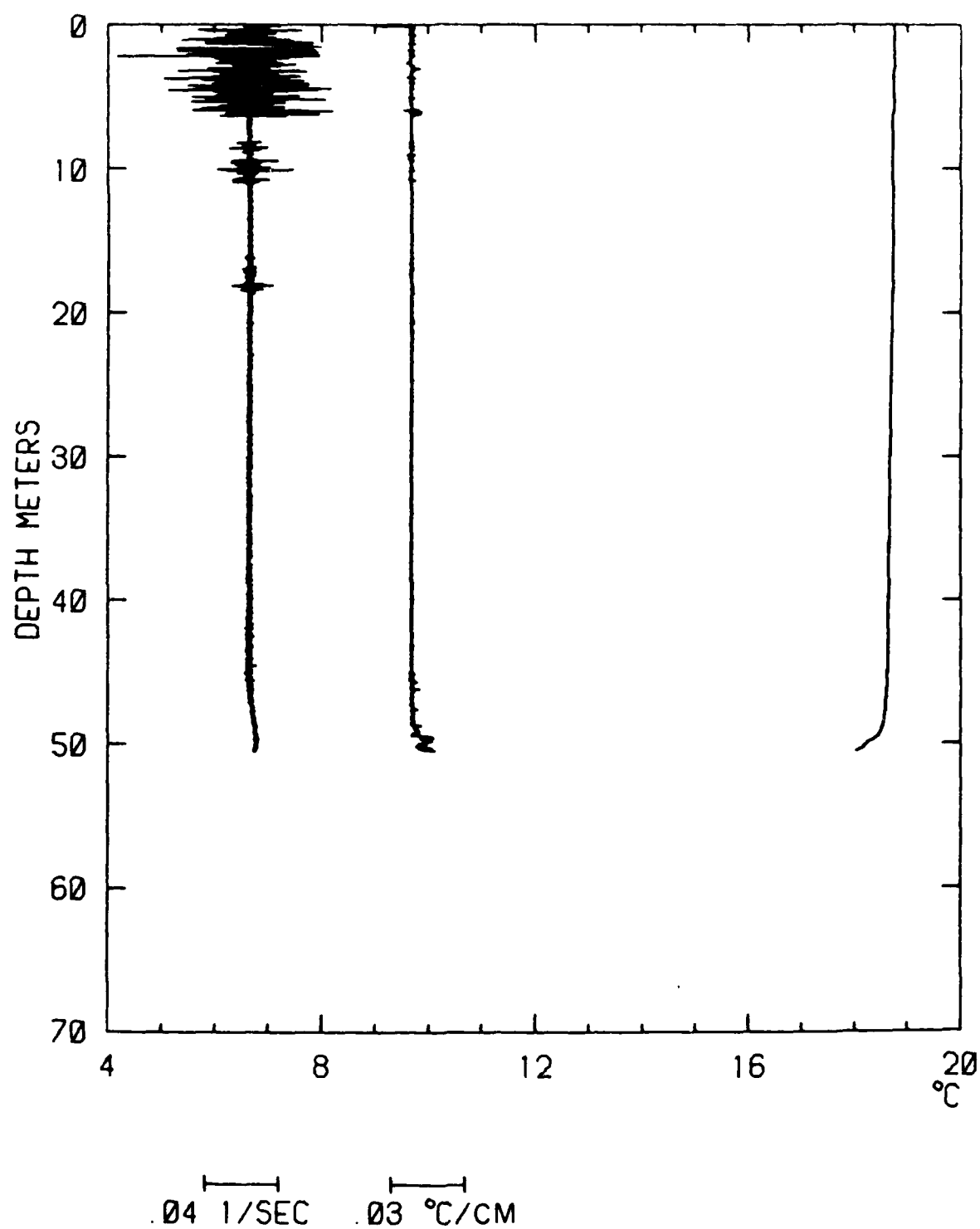
3-NOV-83 18:46

133

TAPE 50
FILE 3



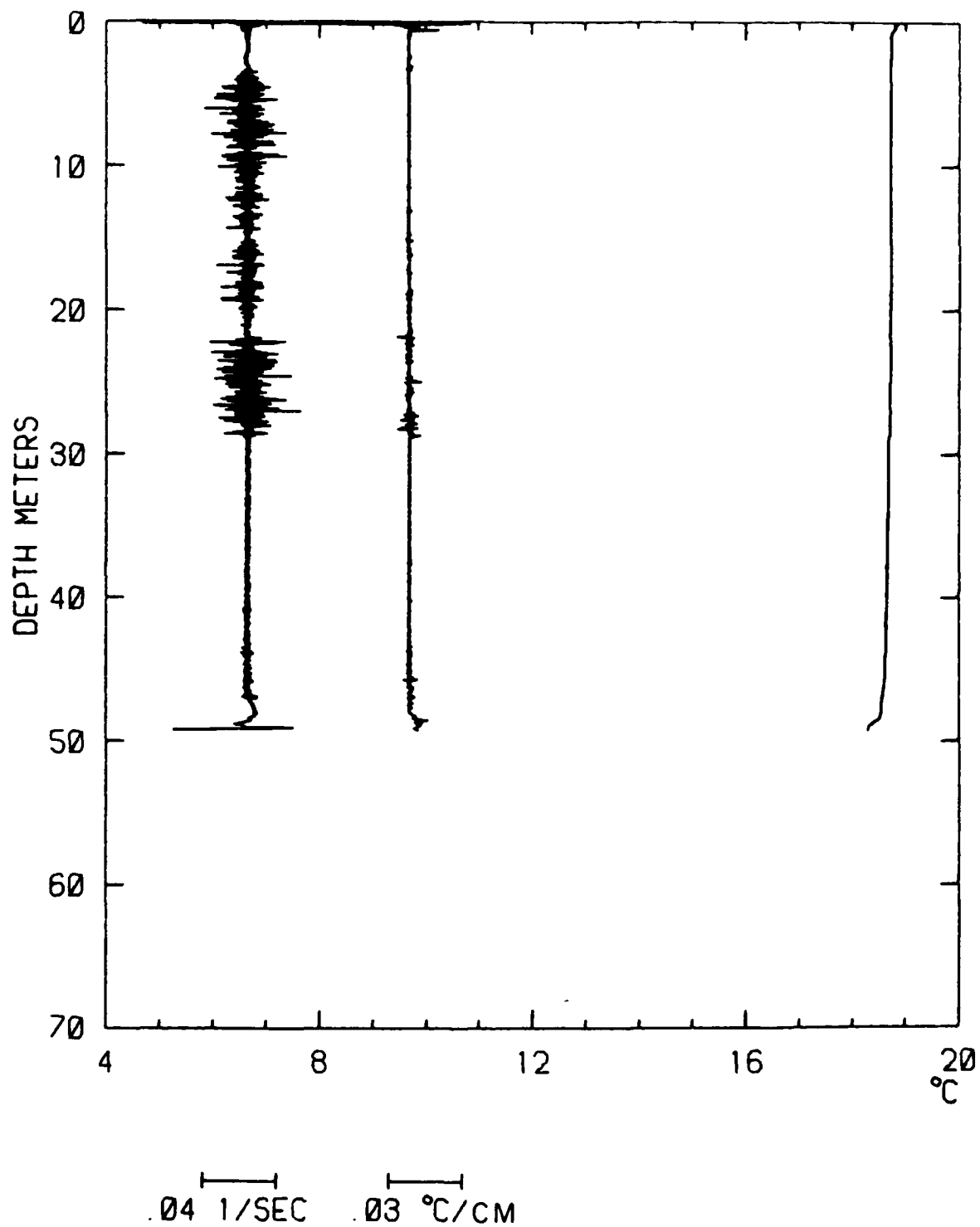
3-NOV-83 18:54

TAPE 50
FILE 4

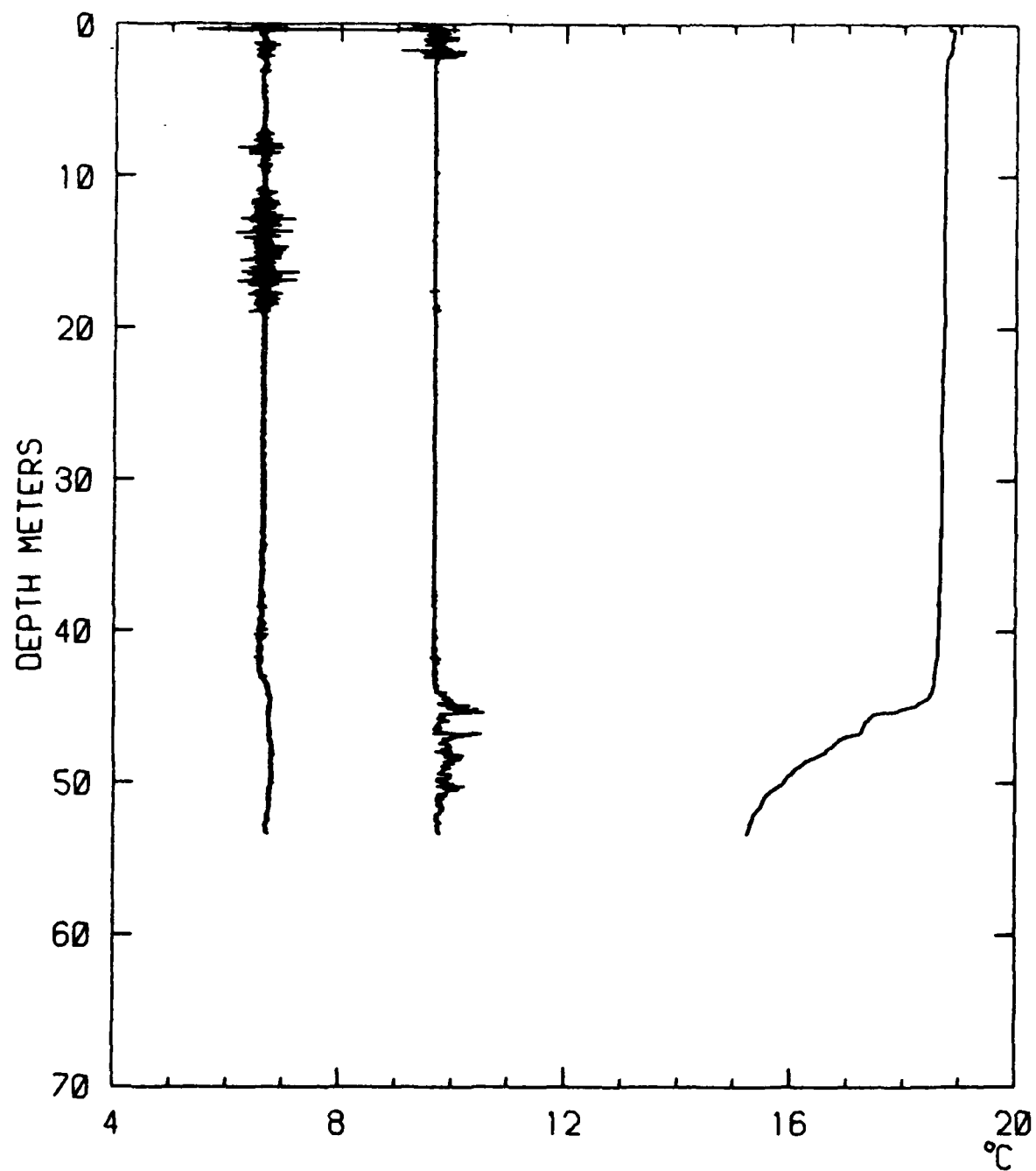
3-NOV-83 19:02

135

TAPE 50
FILE 5

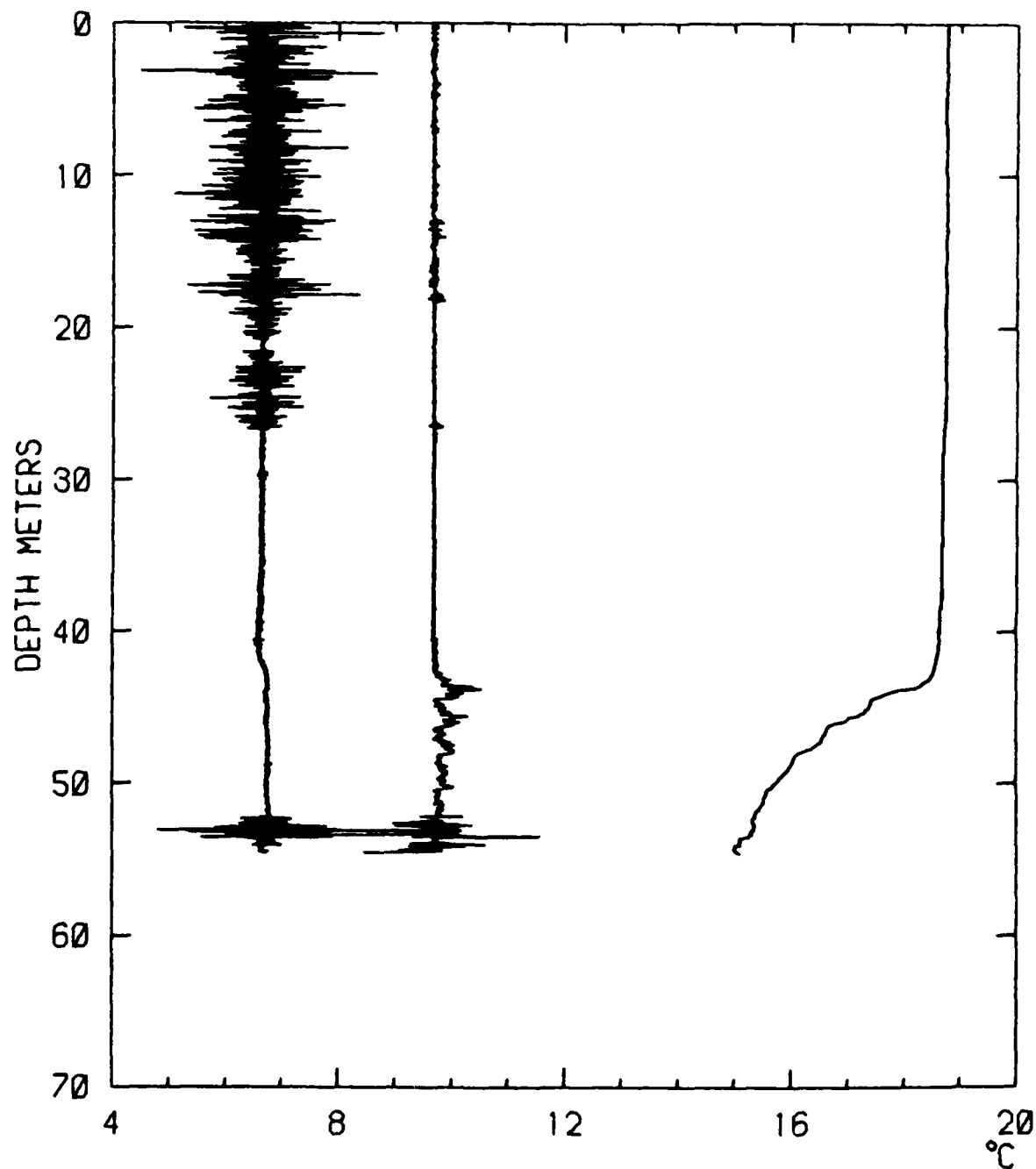


3-NOV-83 19:10

TAPE 50
FILE 6

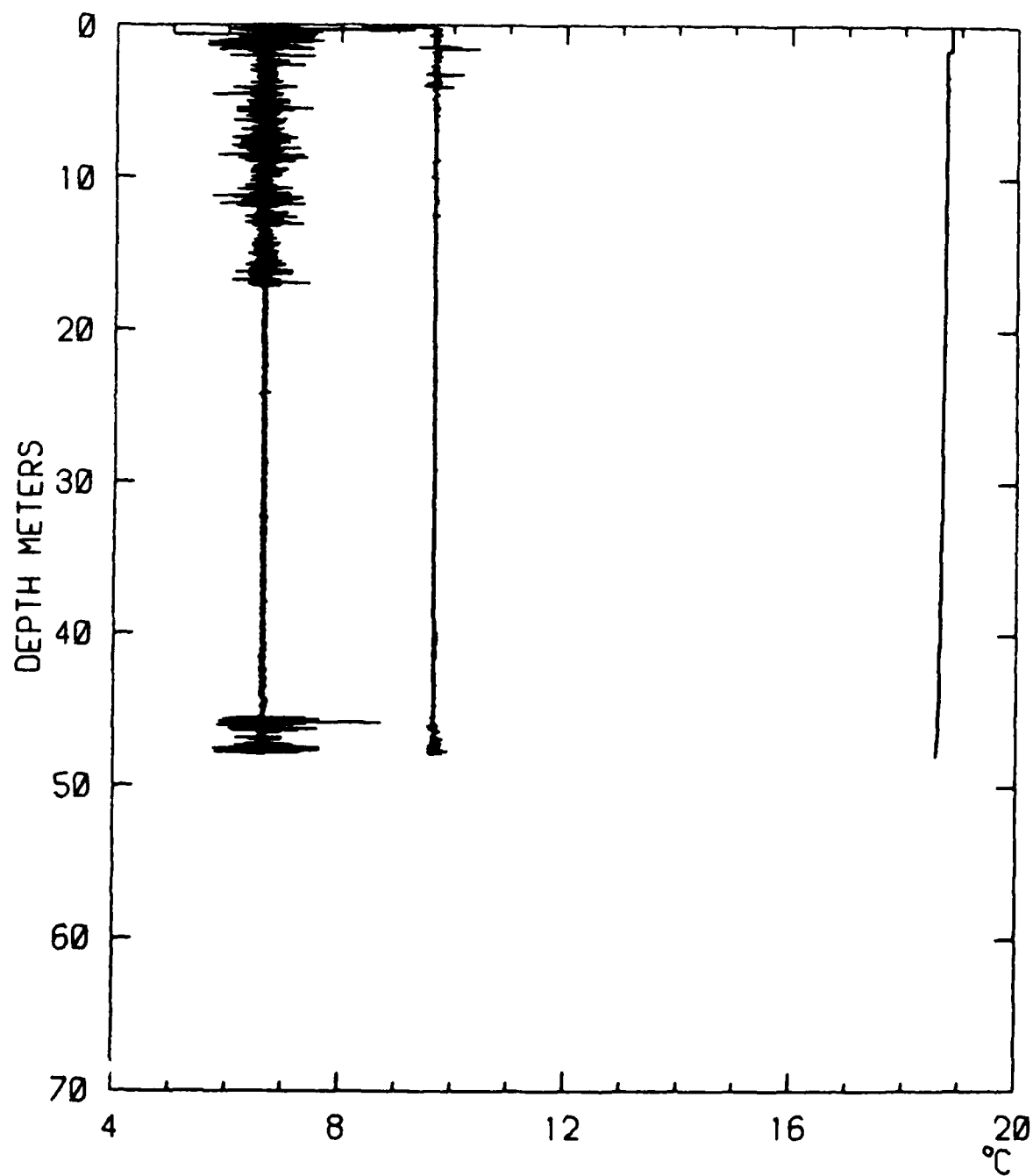
04 1/SEC 03 °C/CM

3-NOV-83 19:18

TAPE 50
FILE 7

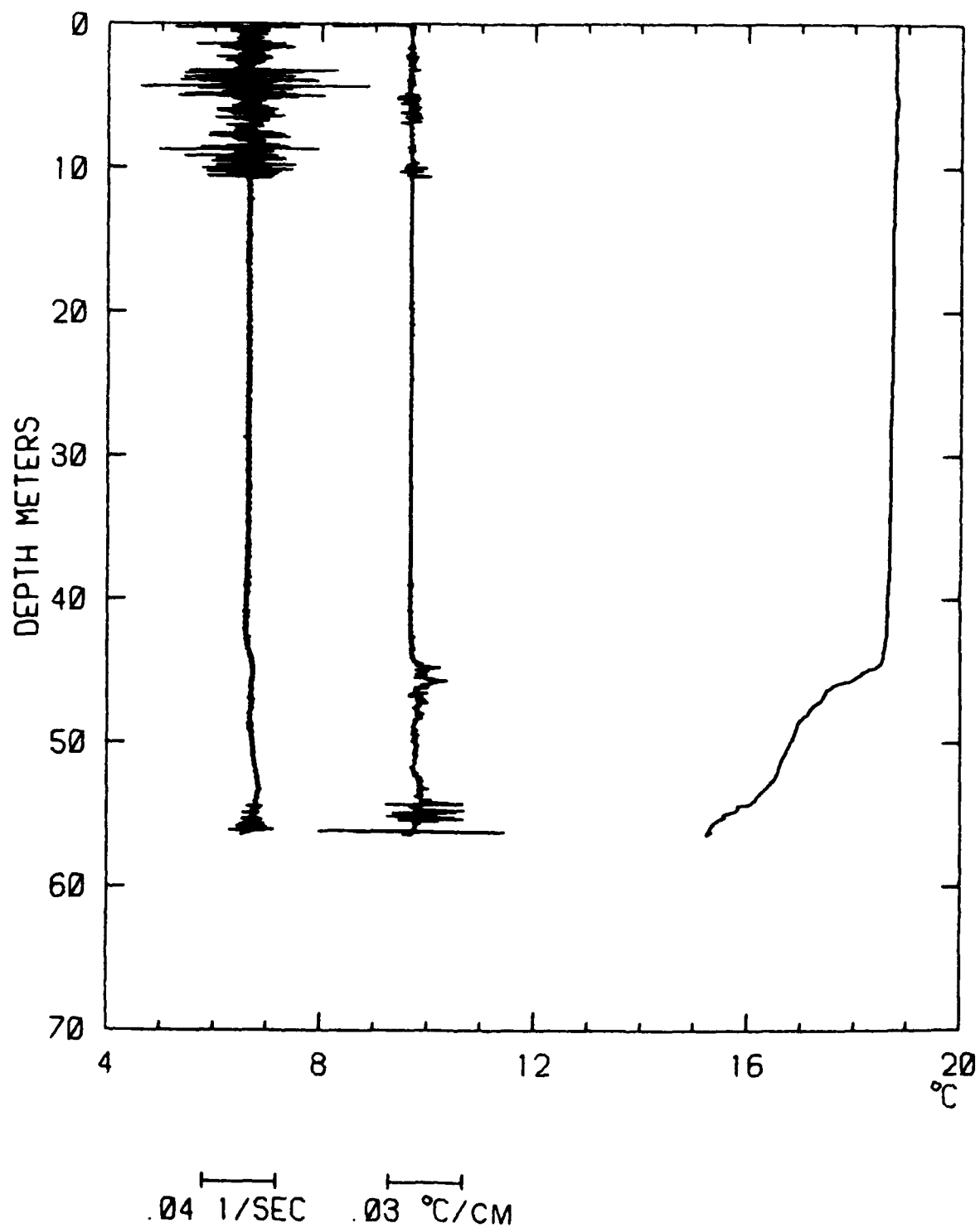
.04 1/SEC .03 °C/CM

3-NOV-83 19:27

TAPE 50
FILE 8

.04 1/SEC .03 °C/CM

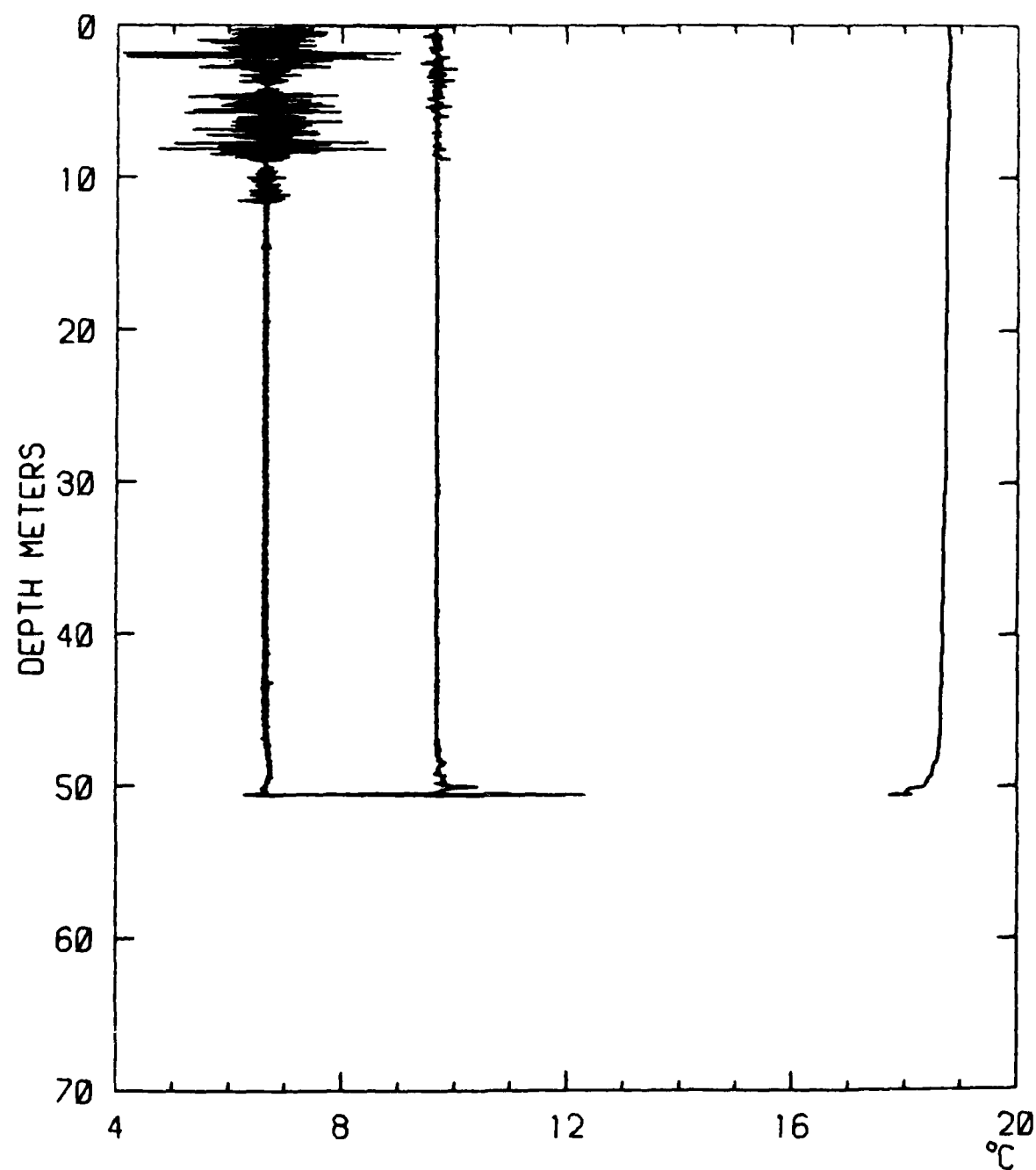
3-NOV-83 19:35

TAPE 50
FILE 9

3-NOV-83 19:53

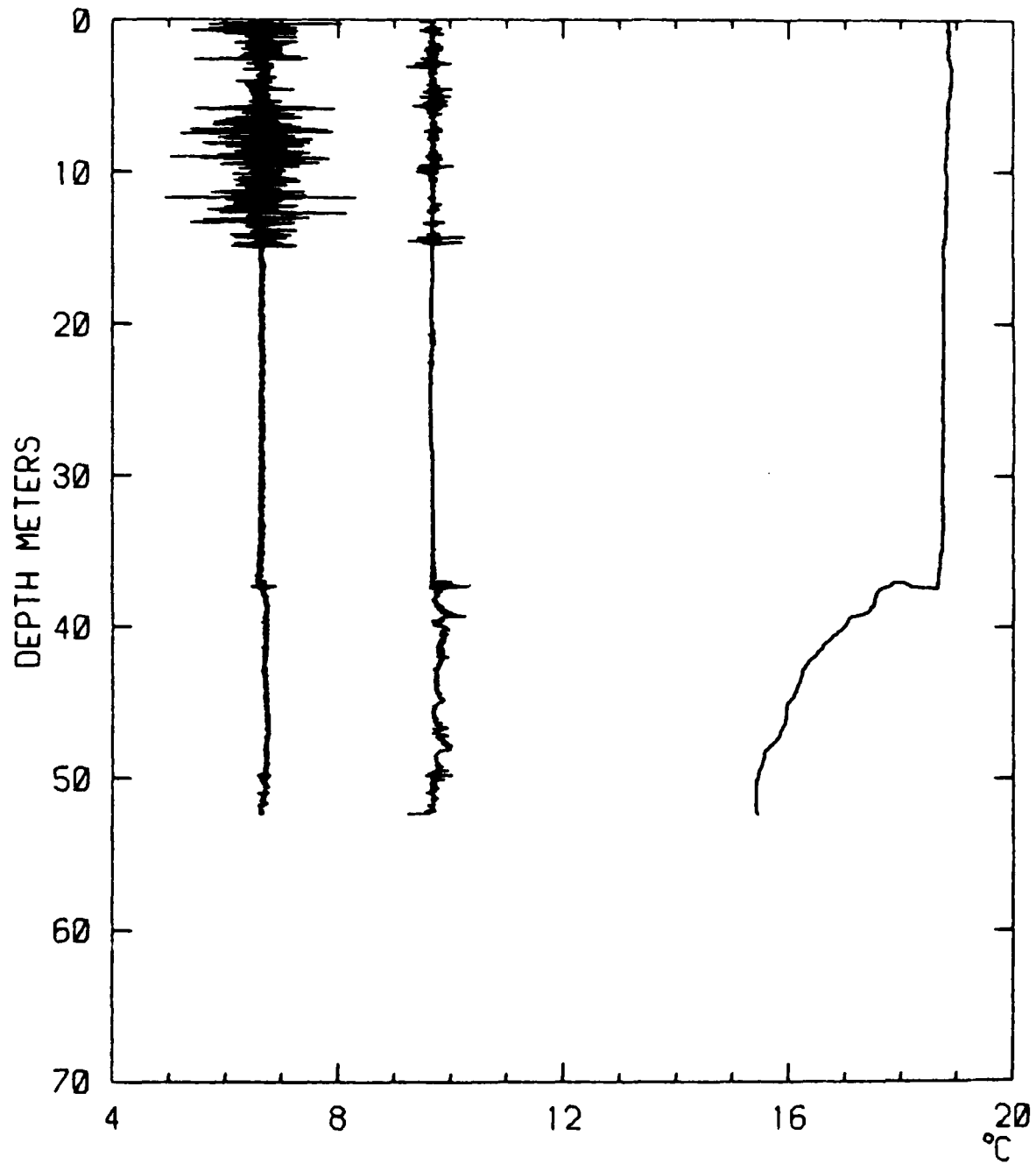
140

TAPE 50
FILE 10



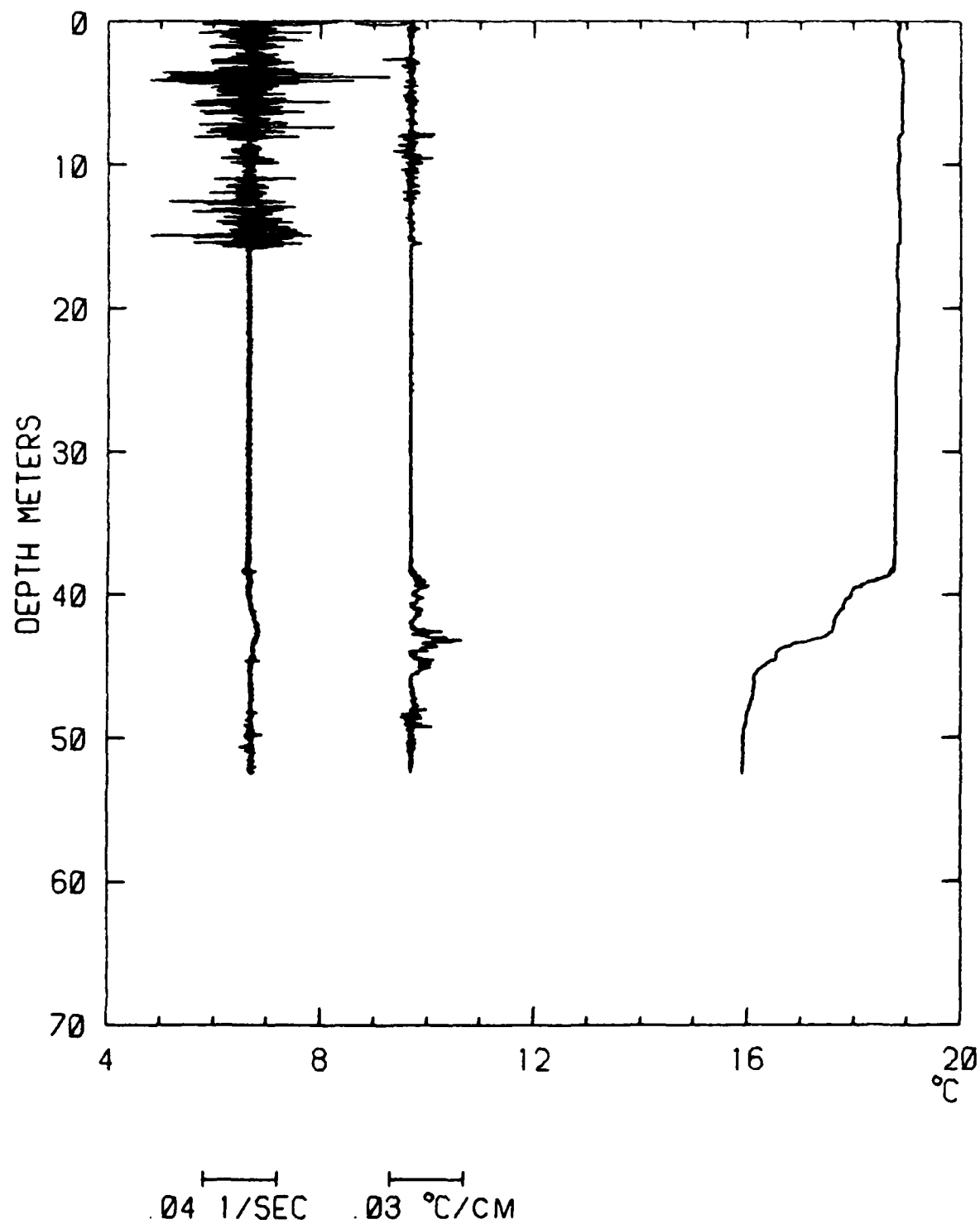
.04 1/SEC .03 °C/CM

3-NOV-83 20:33

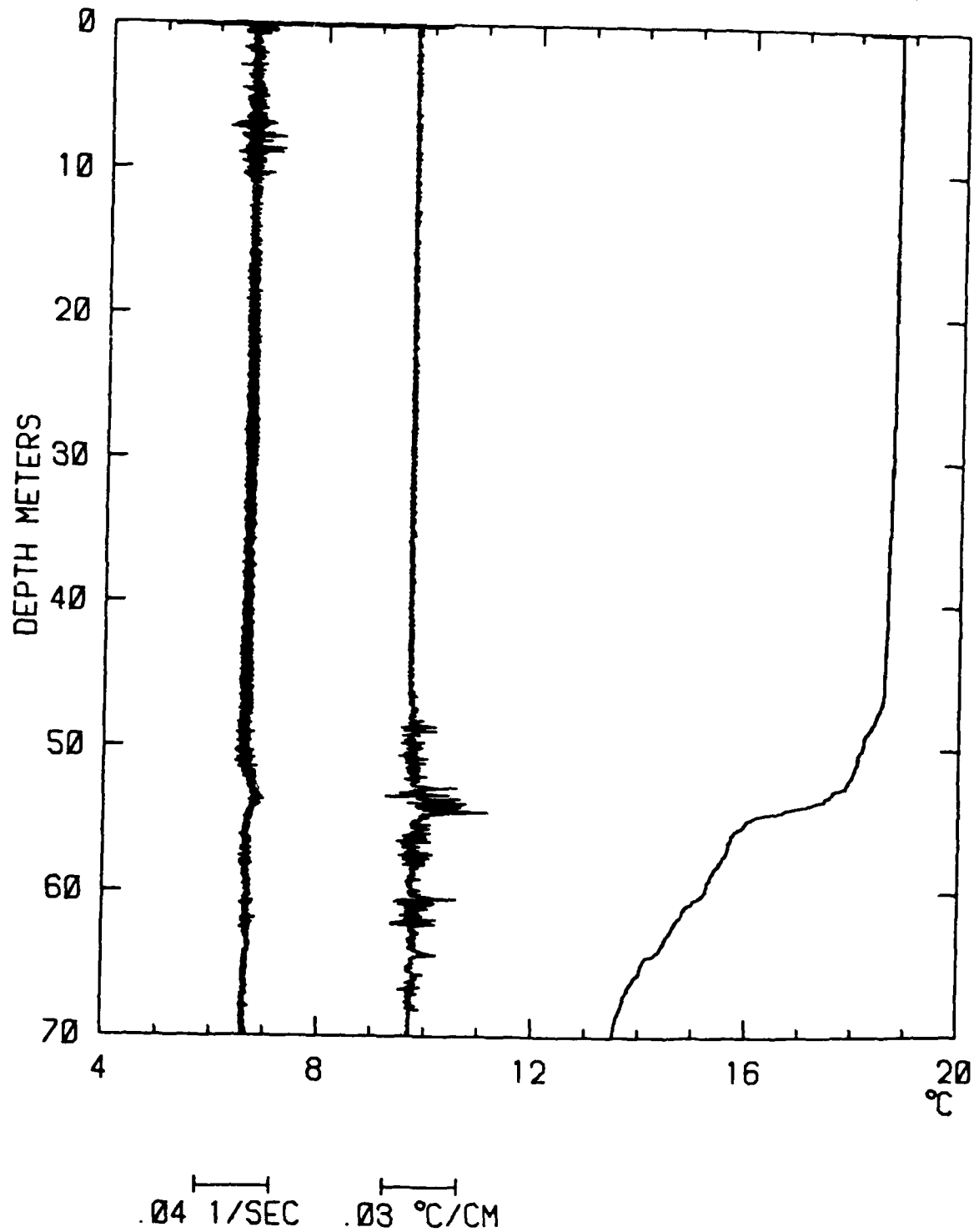
TAPE 50
FILE 11

04 1/SEC 03 °C/CM

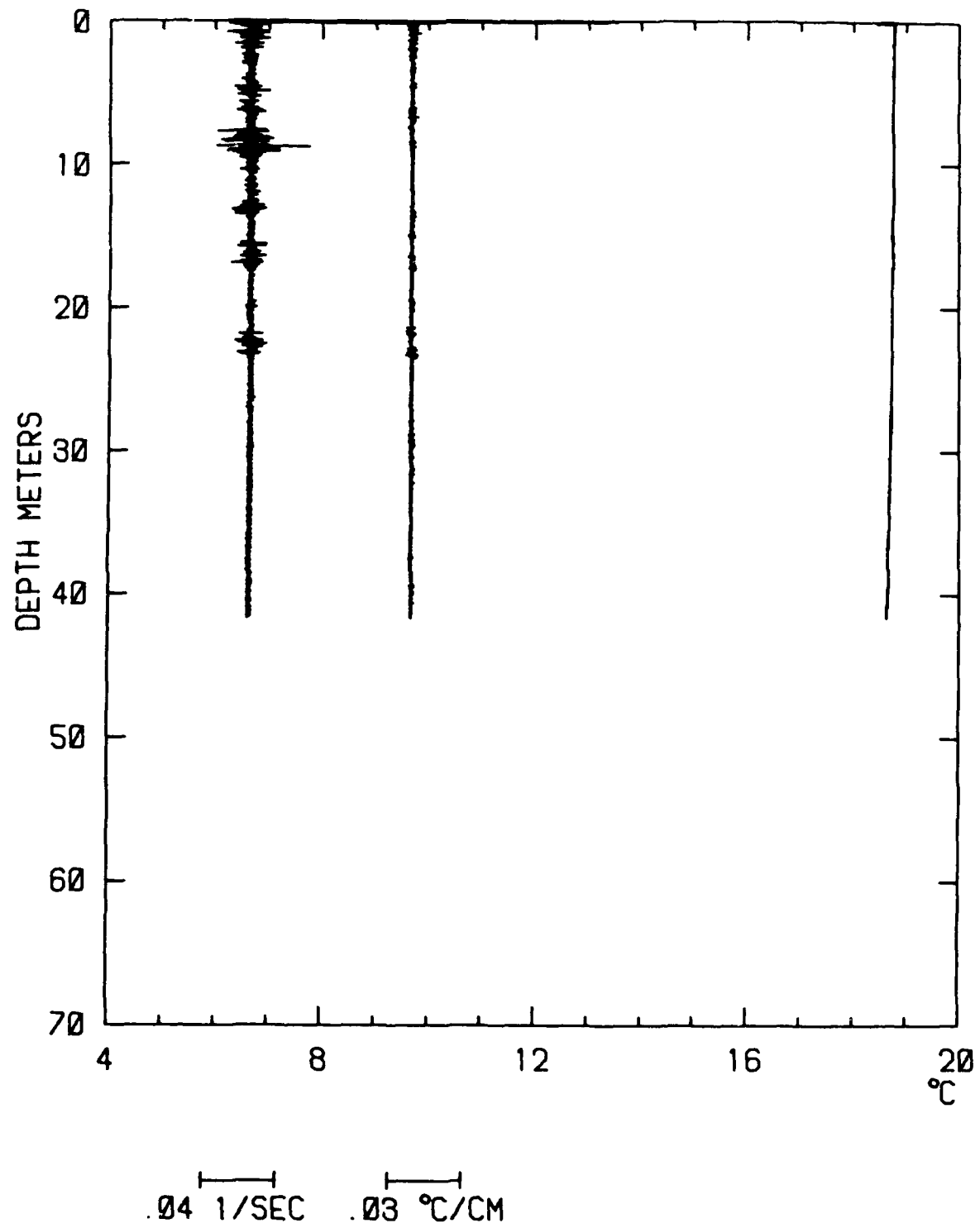
3-NOV-83 20:43

TAPE 50
FILE 12

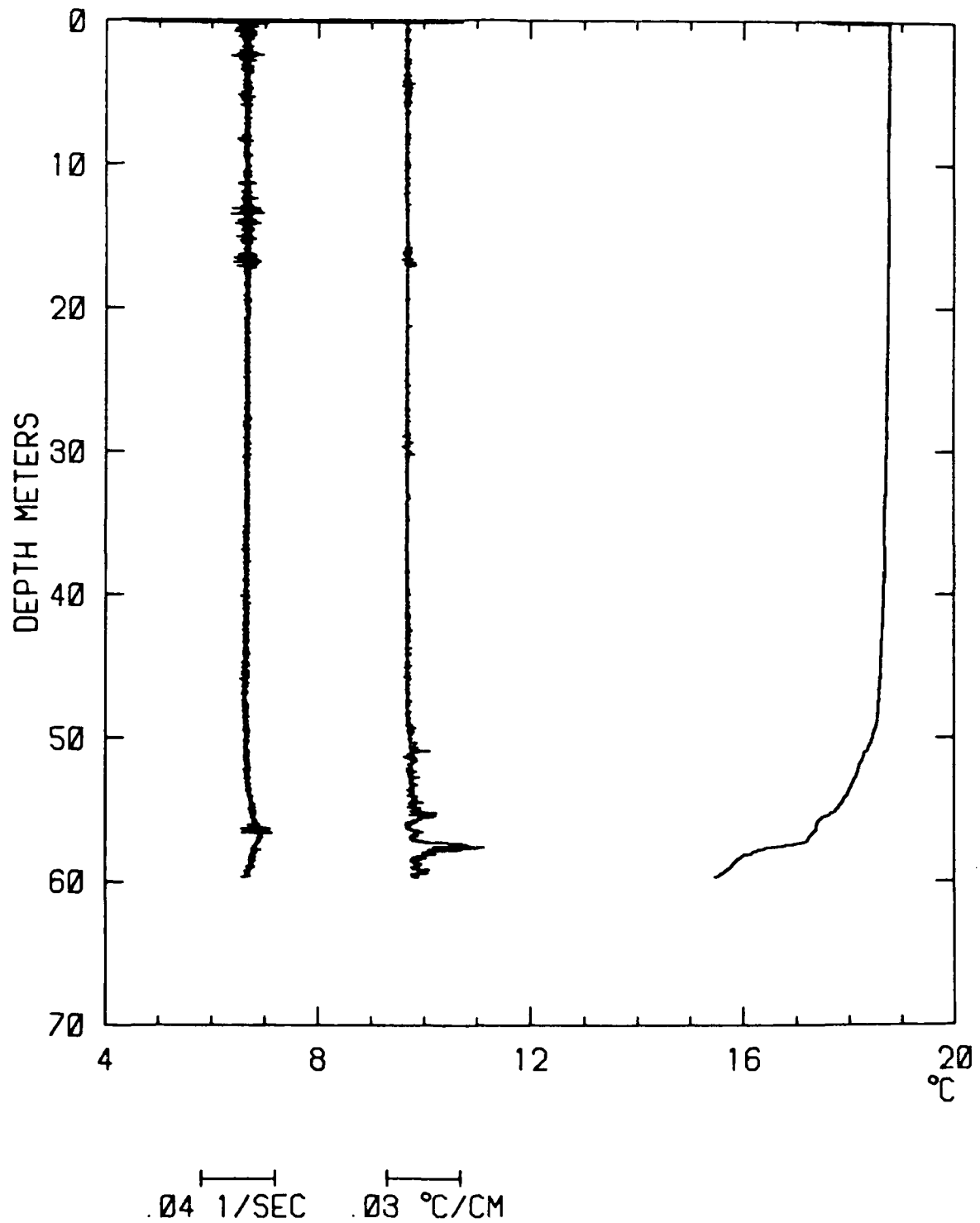
4-NOV-83 18:24

TAPE 51
FILE 1

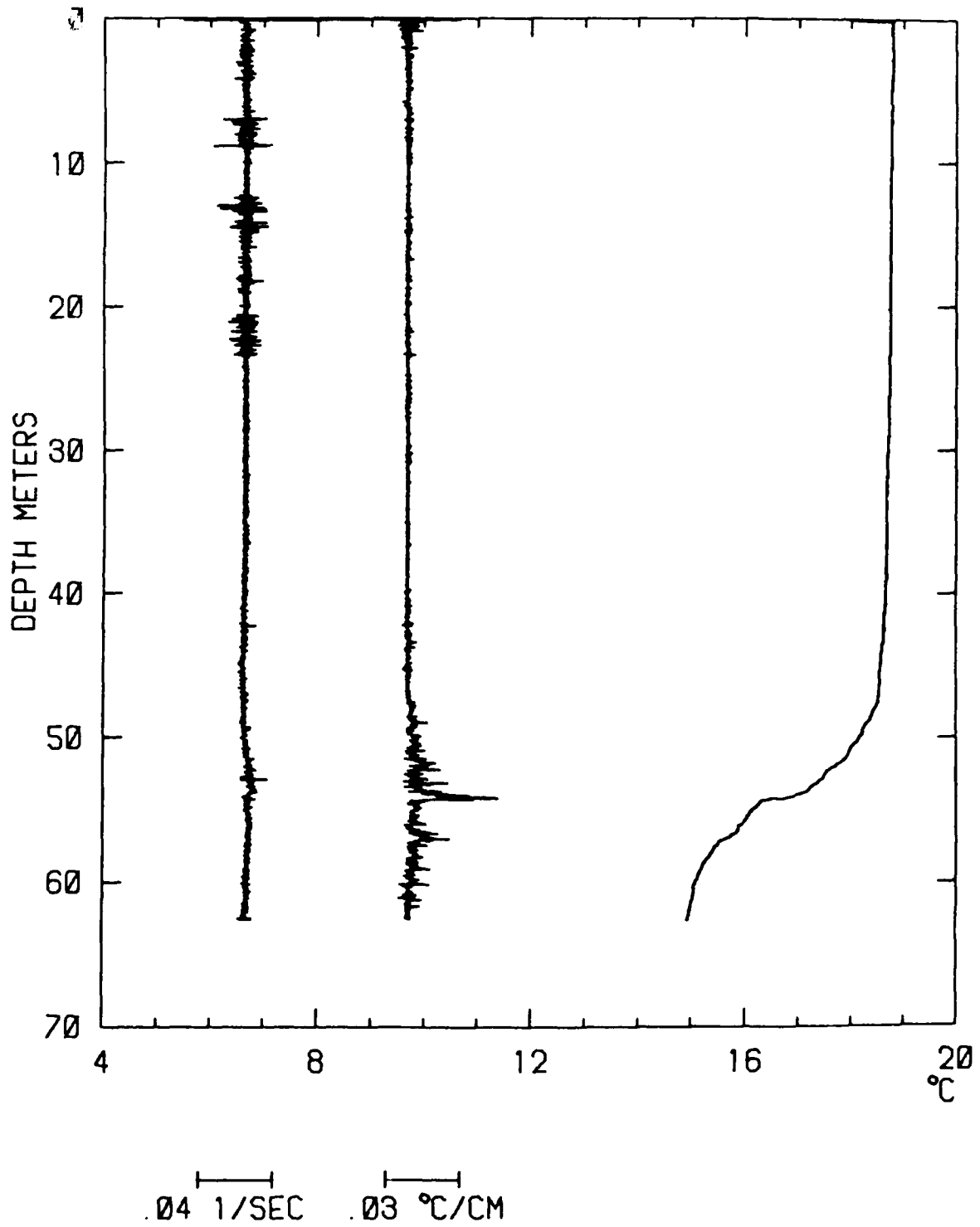
4-NOV-83 18:50

TAPE 51
FILE 2

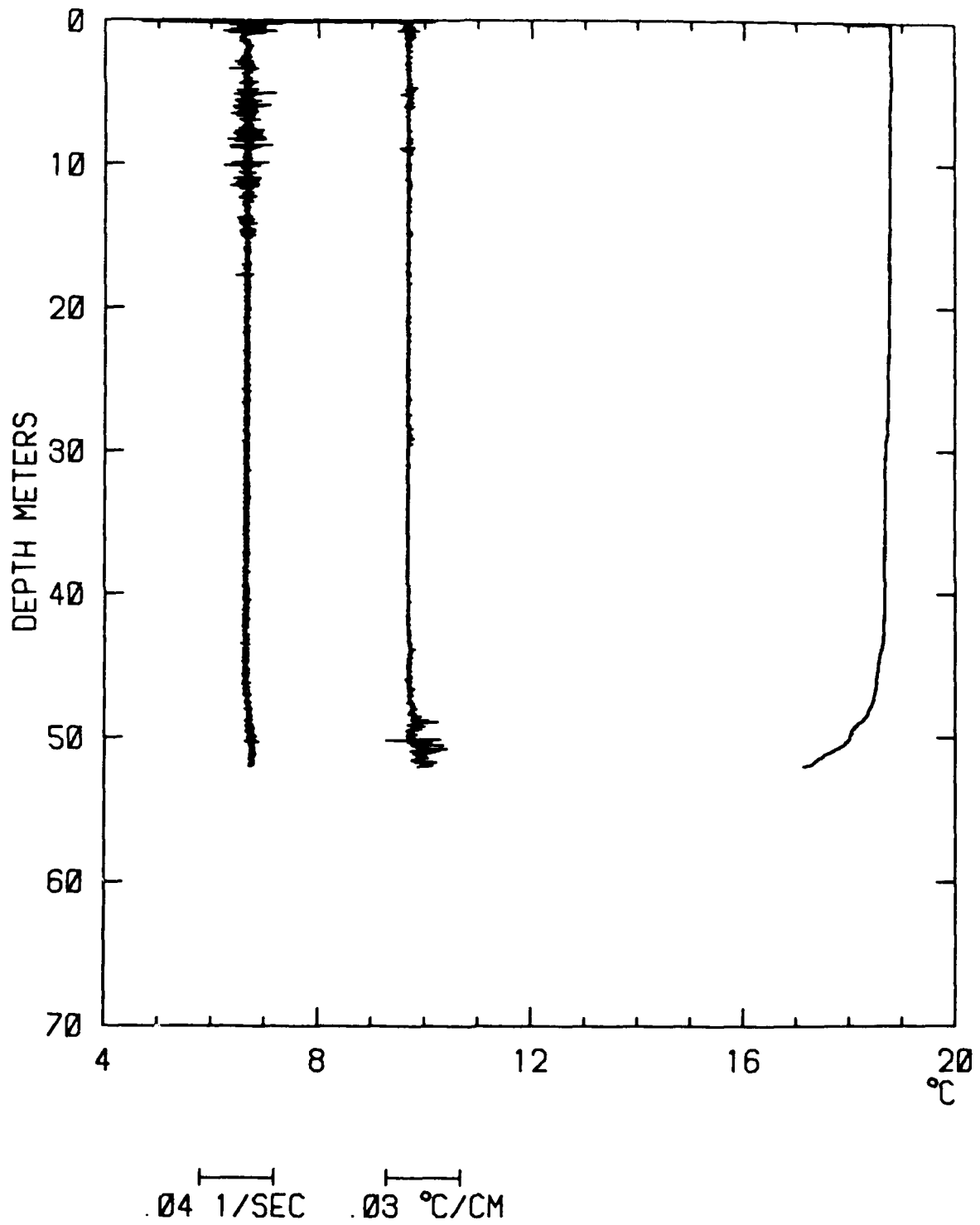
4-NOV-83 19:11

TAPE 51
FILE 3

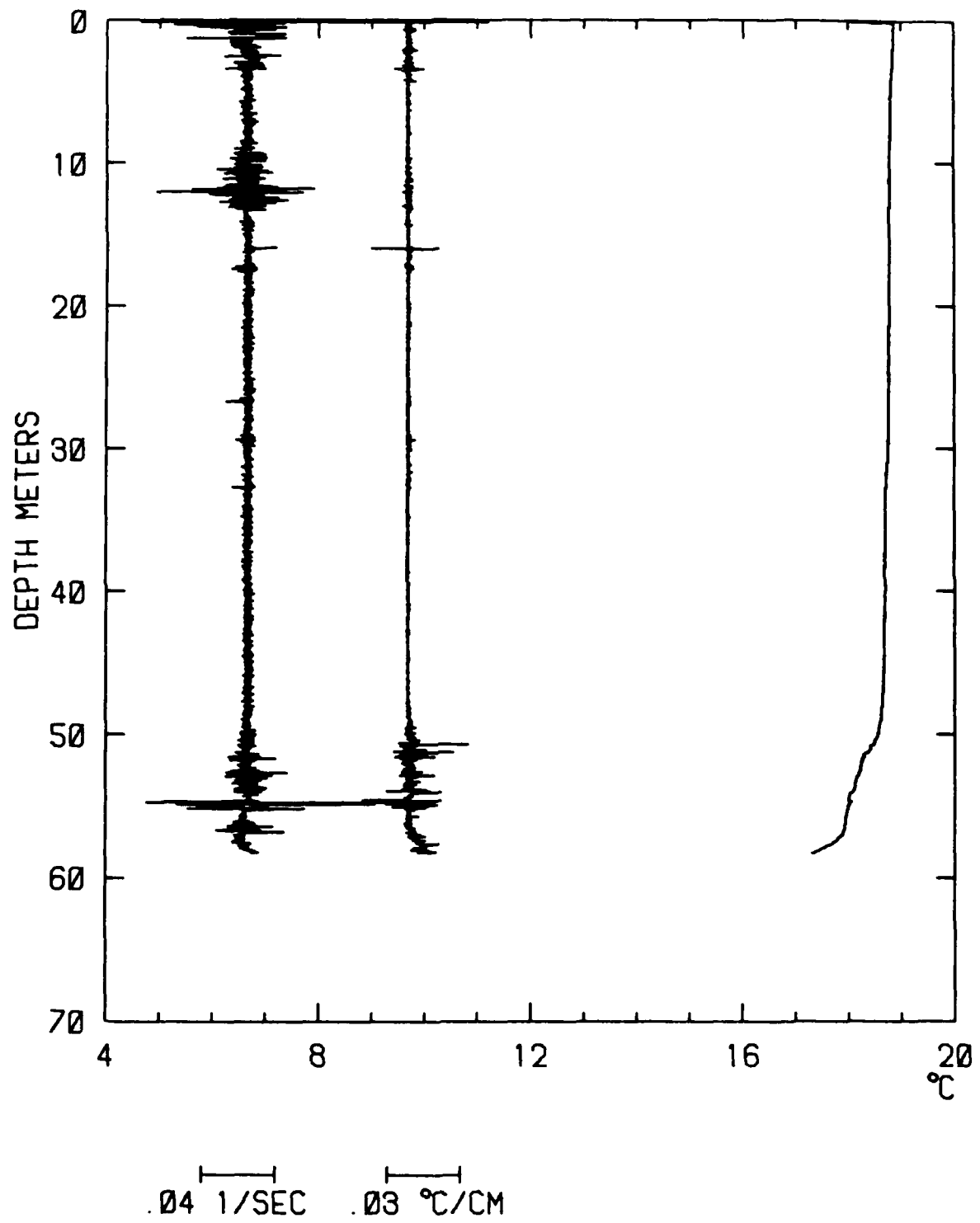
4-NOV-83 19:22

TAPE 51
FILE 4

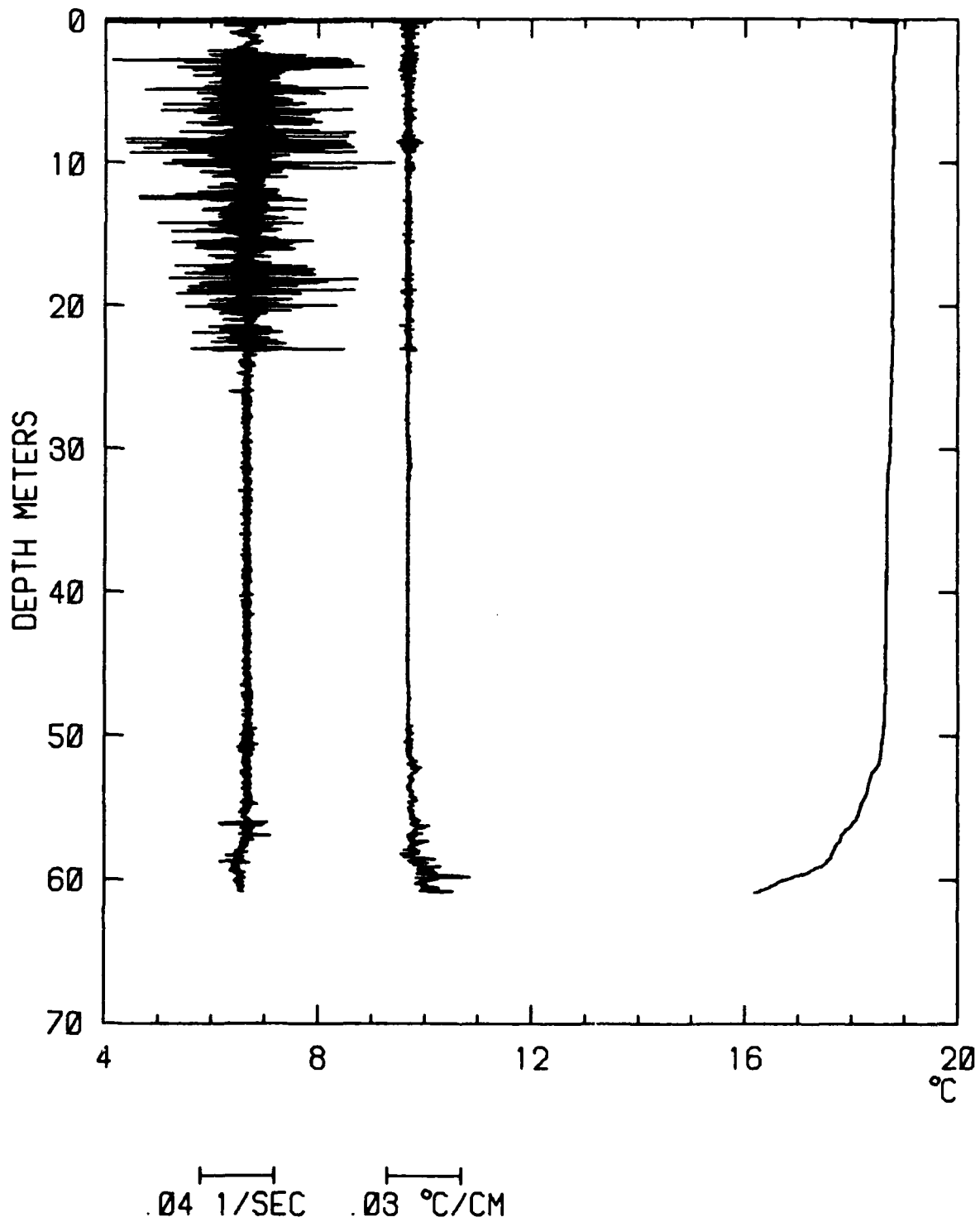
4-NOV-83 19:30

TAPE 51
FILE 5

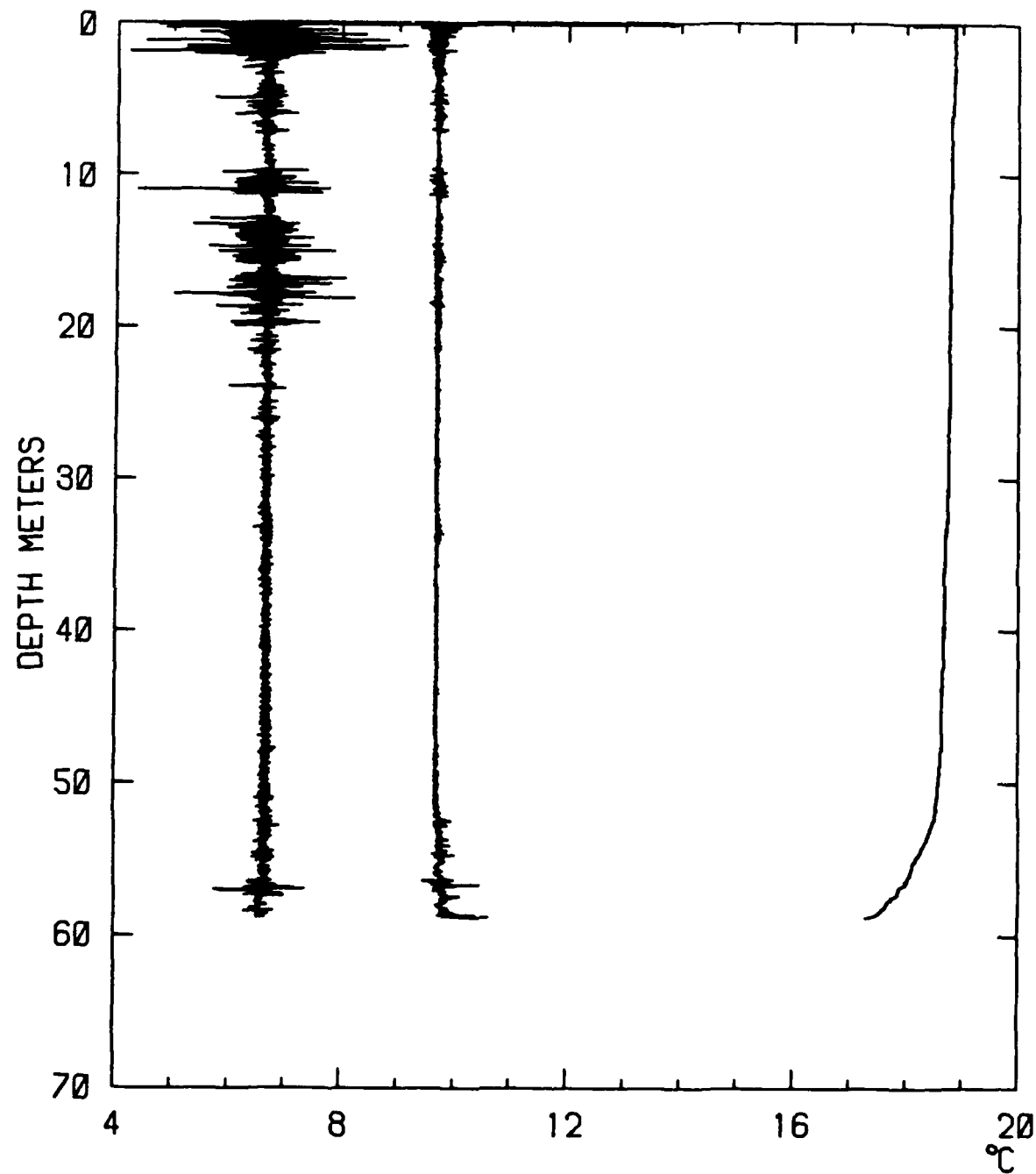
4-NOV-83 20:26

TAPE 51
FILE 7

4-NOV-83 20:35

TAPE 51
FILE 8

4-NOV-83 20:45

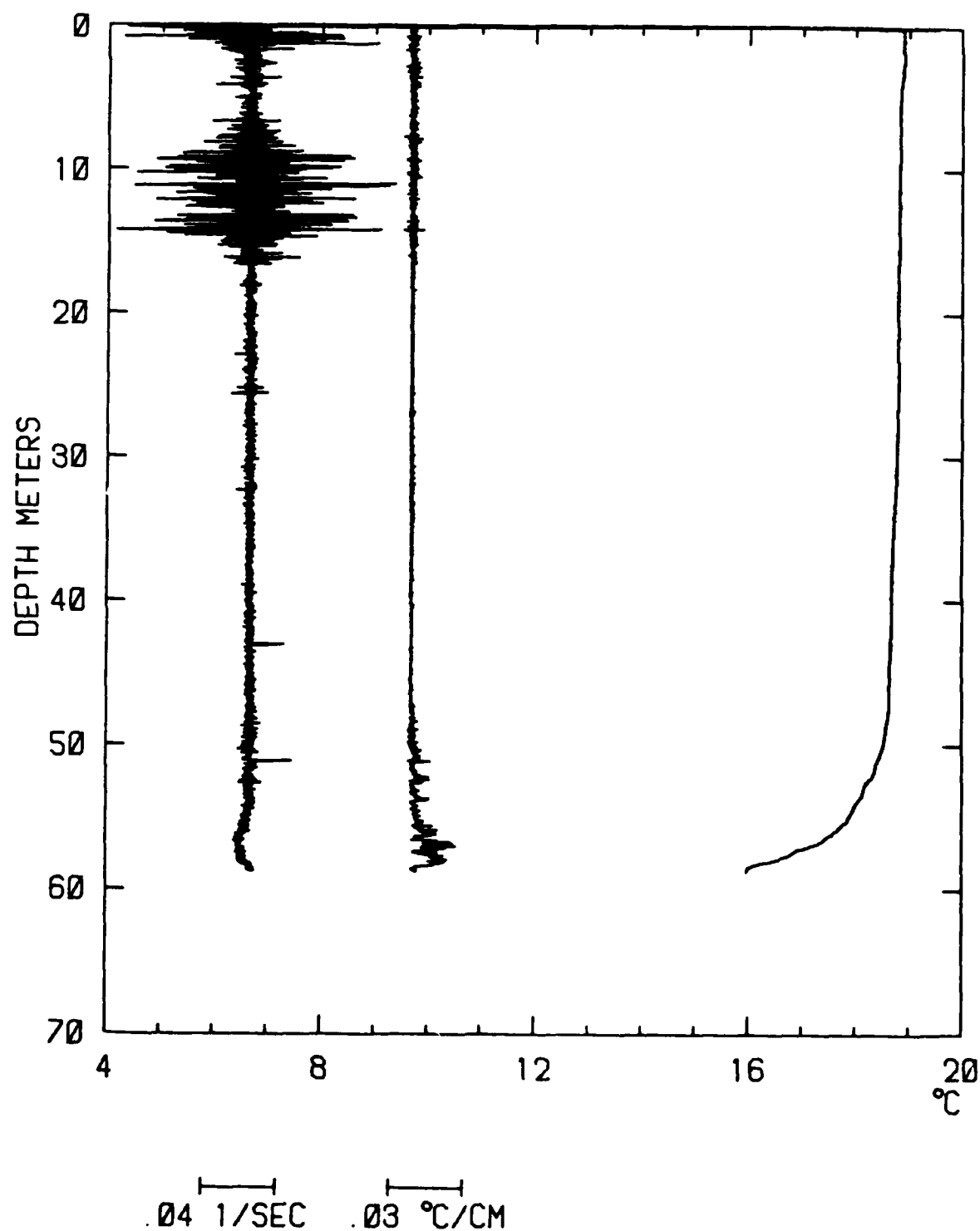
TAPE 51
FILE 9

04 1/SEC 03 °C/CM

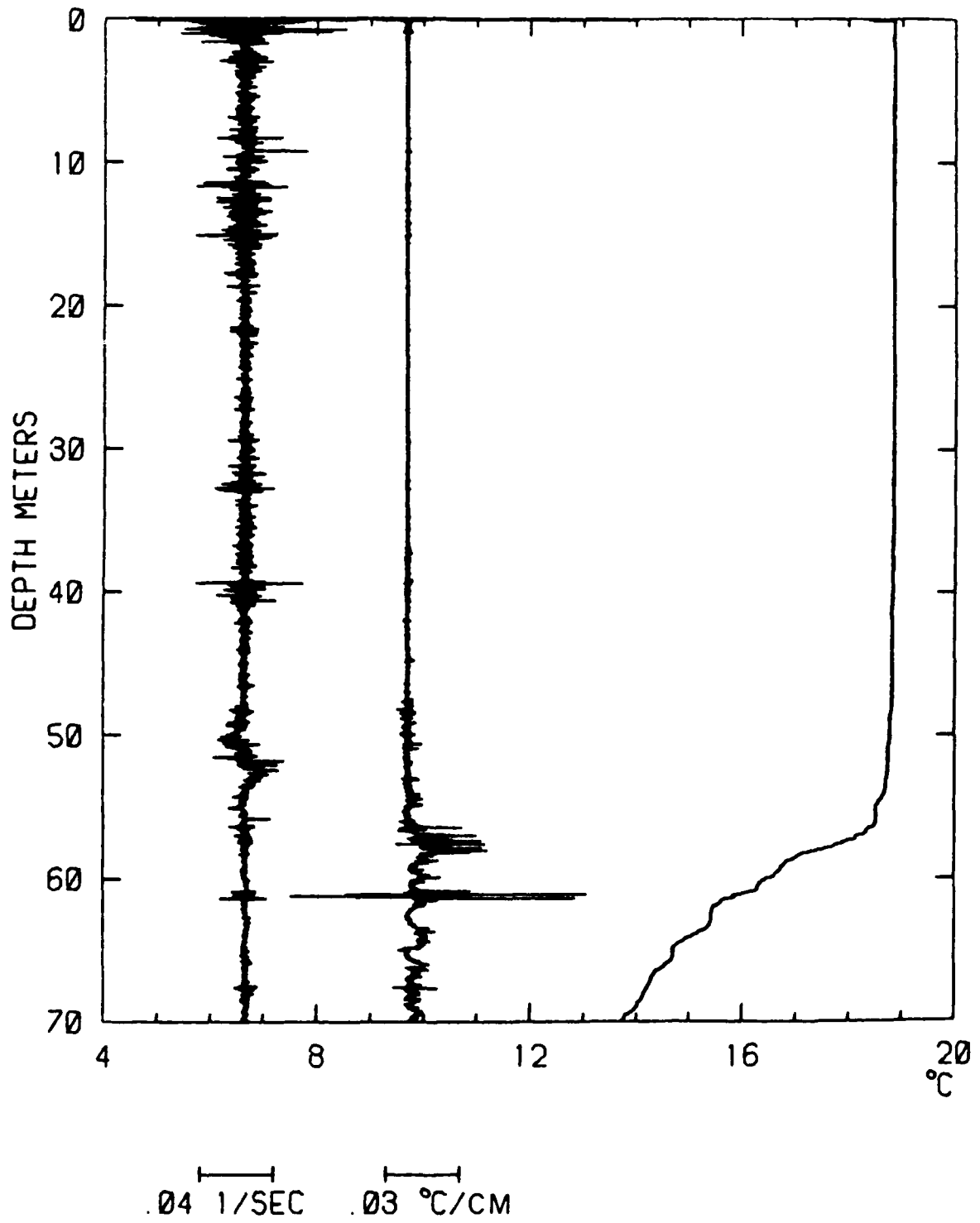
4-NOV-83 20:53

151

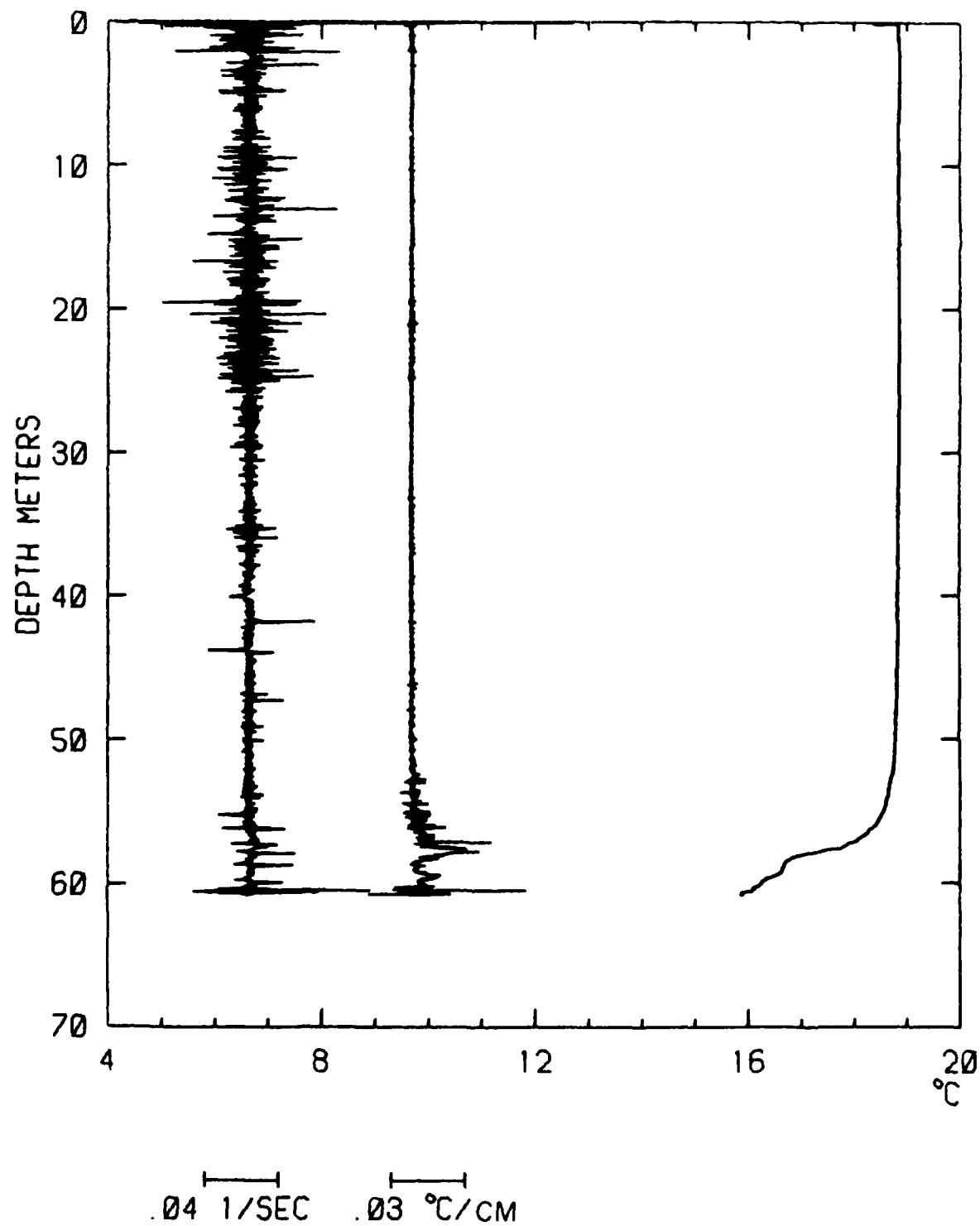
TAPE 51
FILE 10



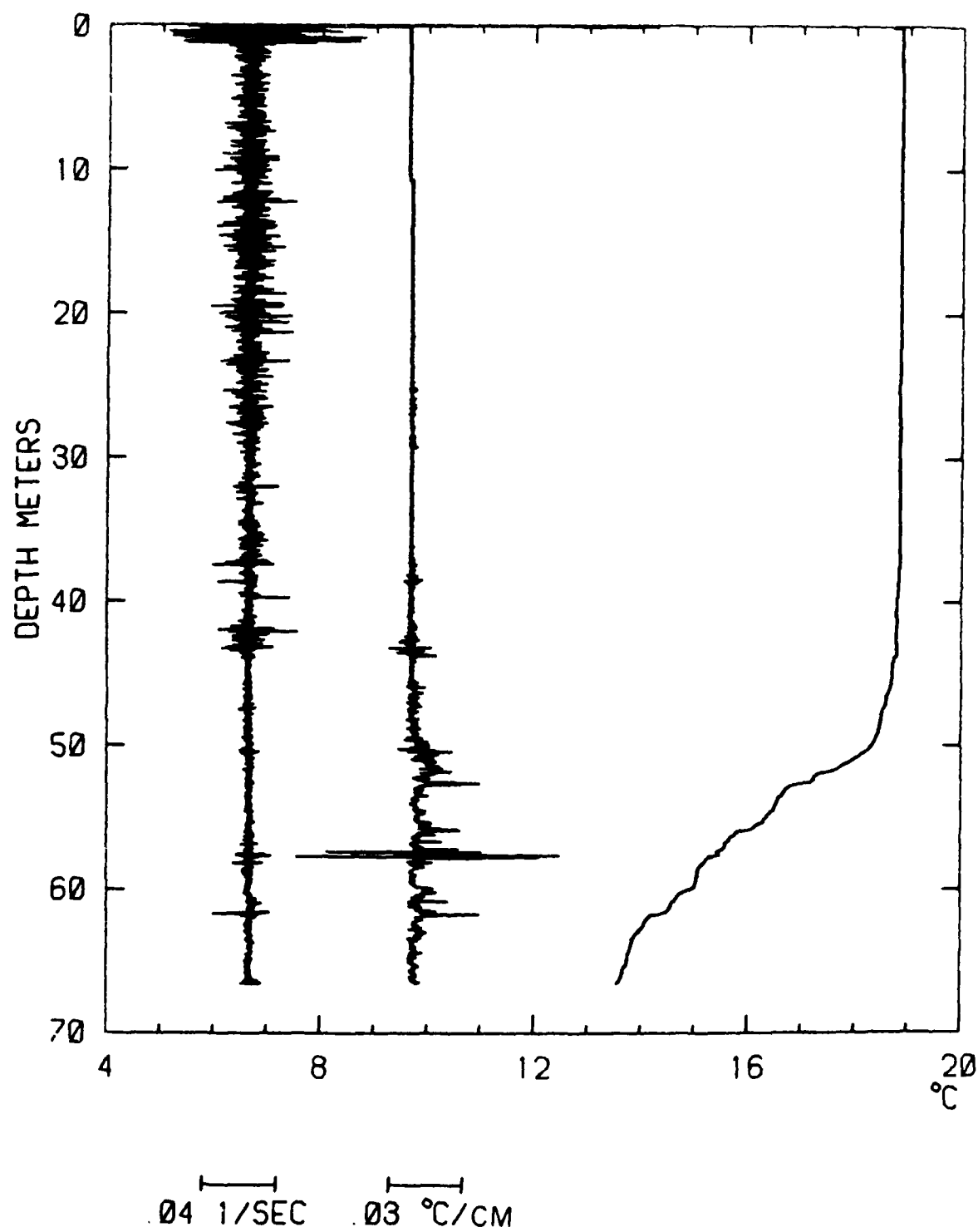
10-NOV-83 20:40

TAPE 64
FILE 1

10-NOV-83 20:52

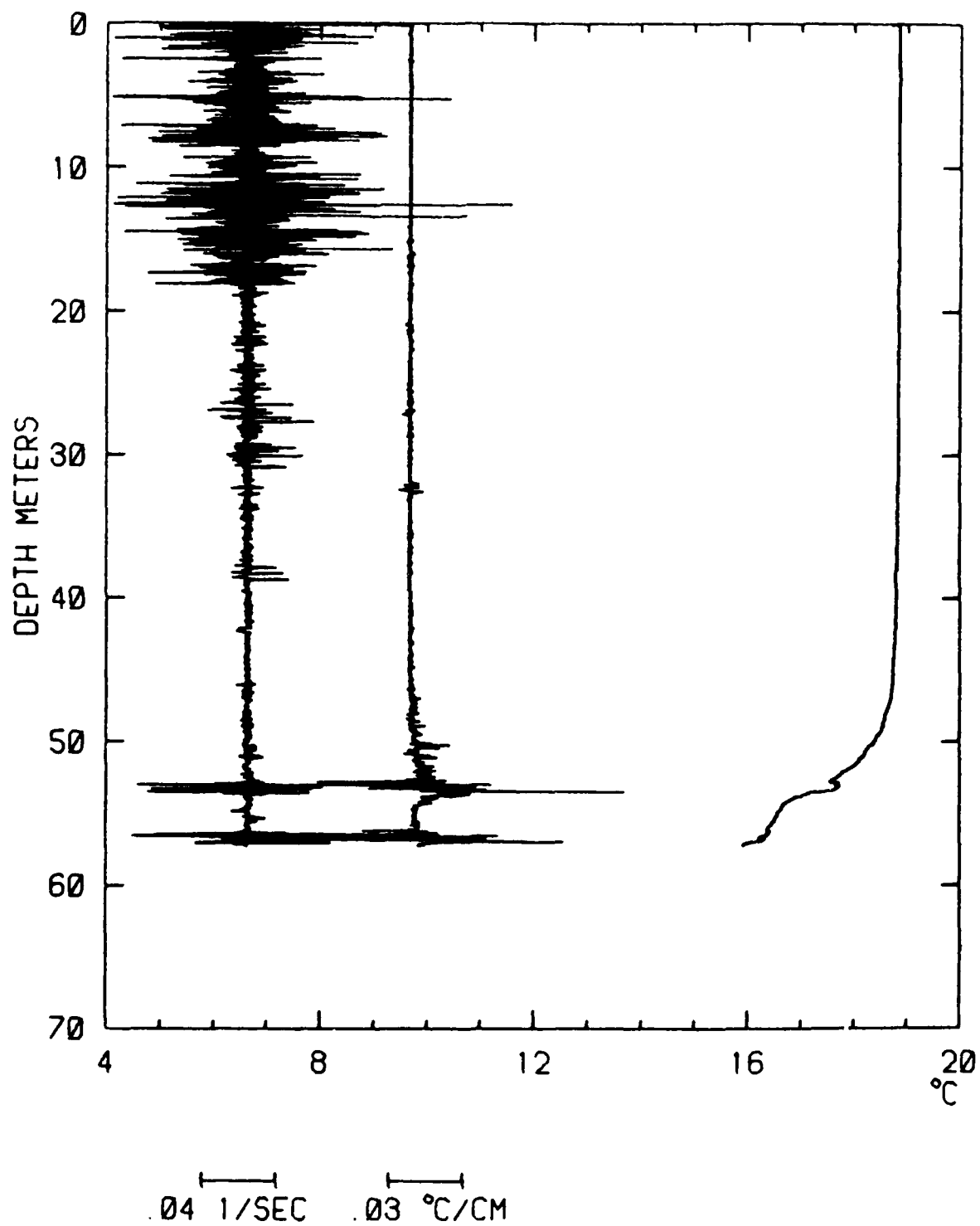
TAPE 64
FILE 2

10-NOV-83 21:45

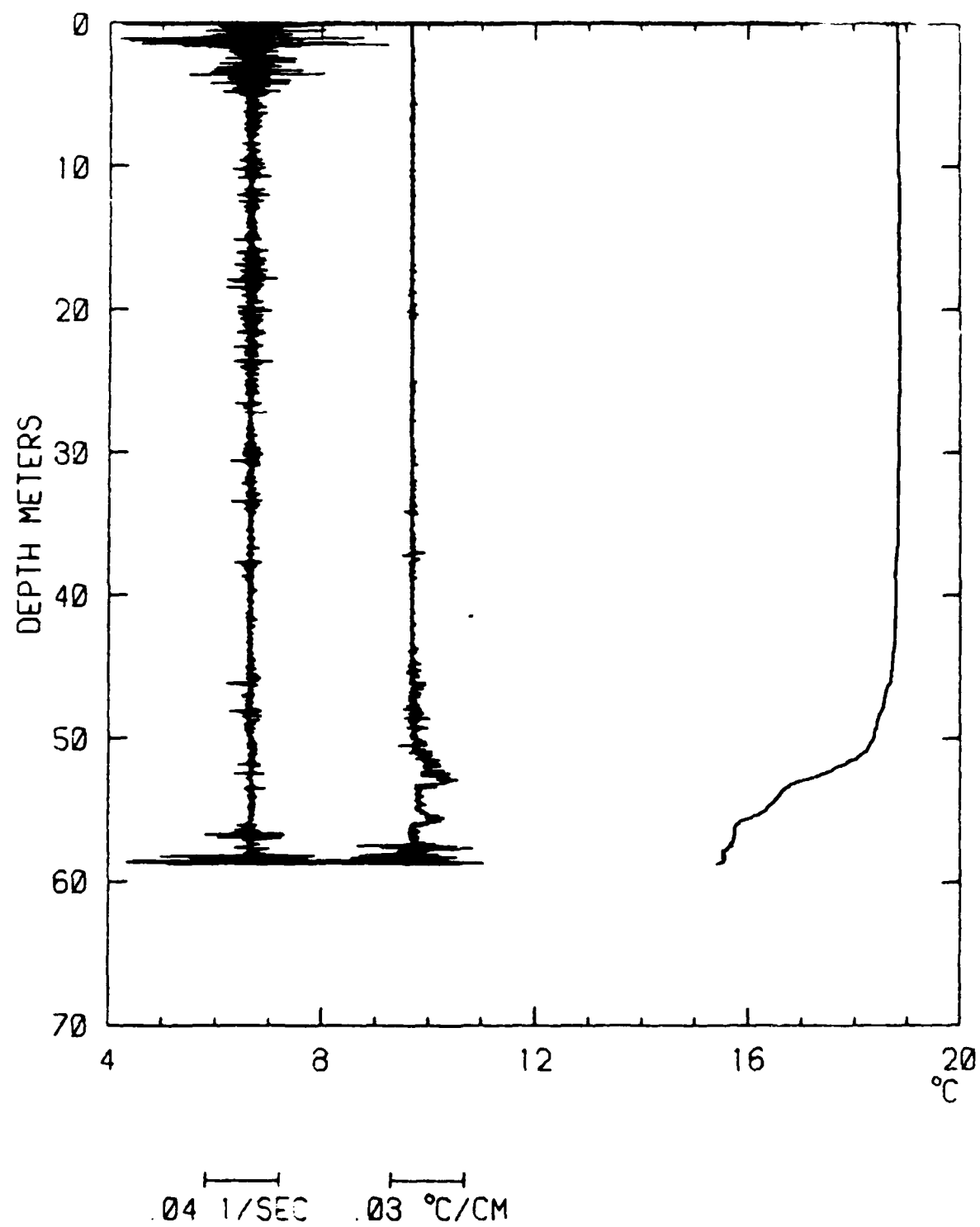
TAPE 64
FILE 3

10-NOV-83 21:57 155

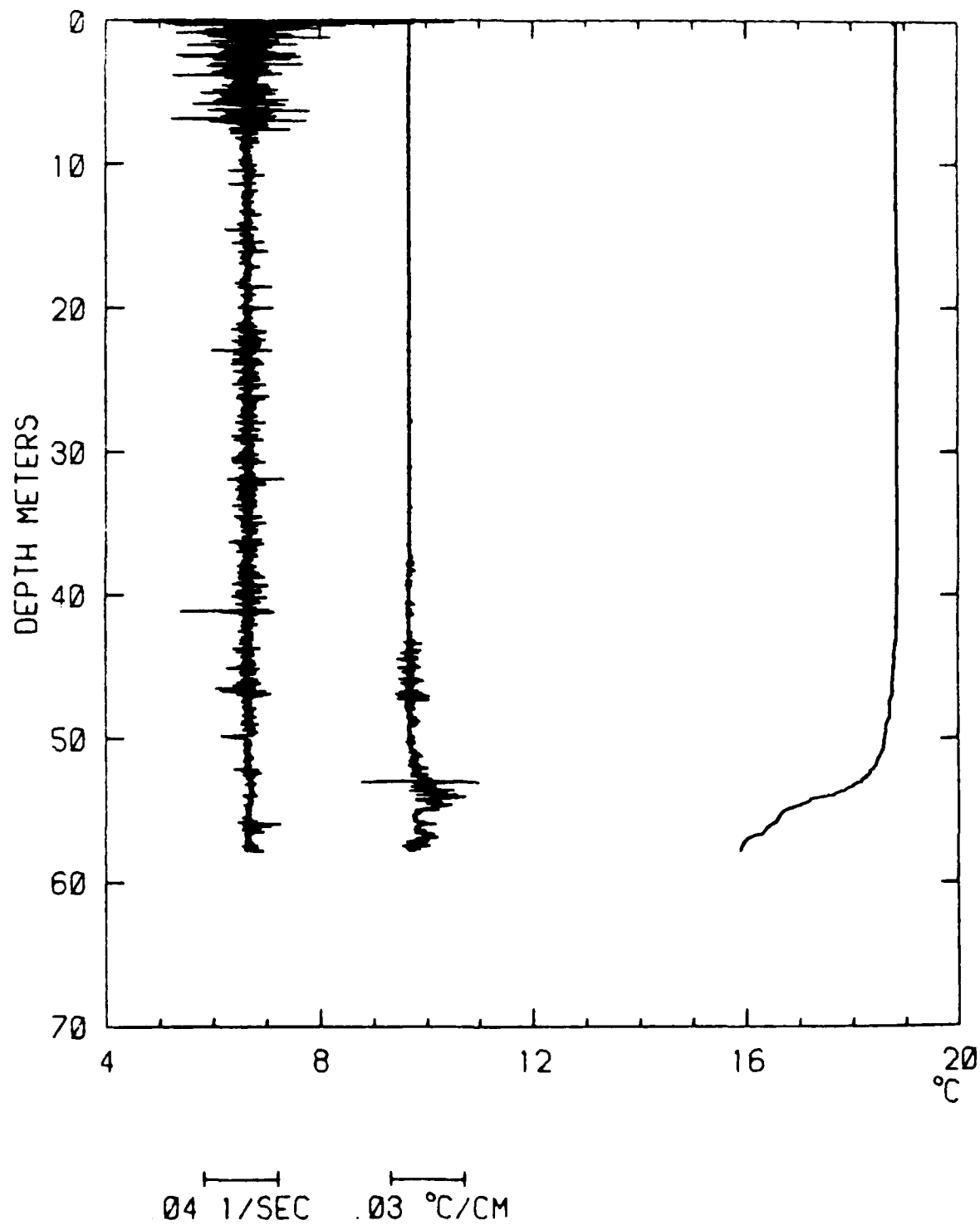
TAPE 64
FILE 4



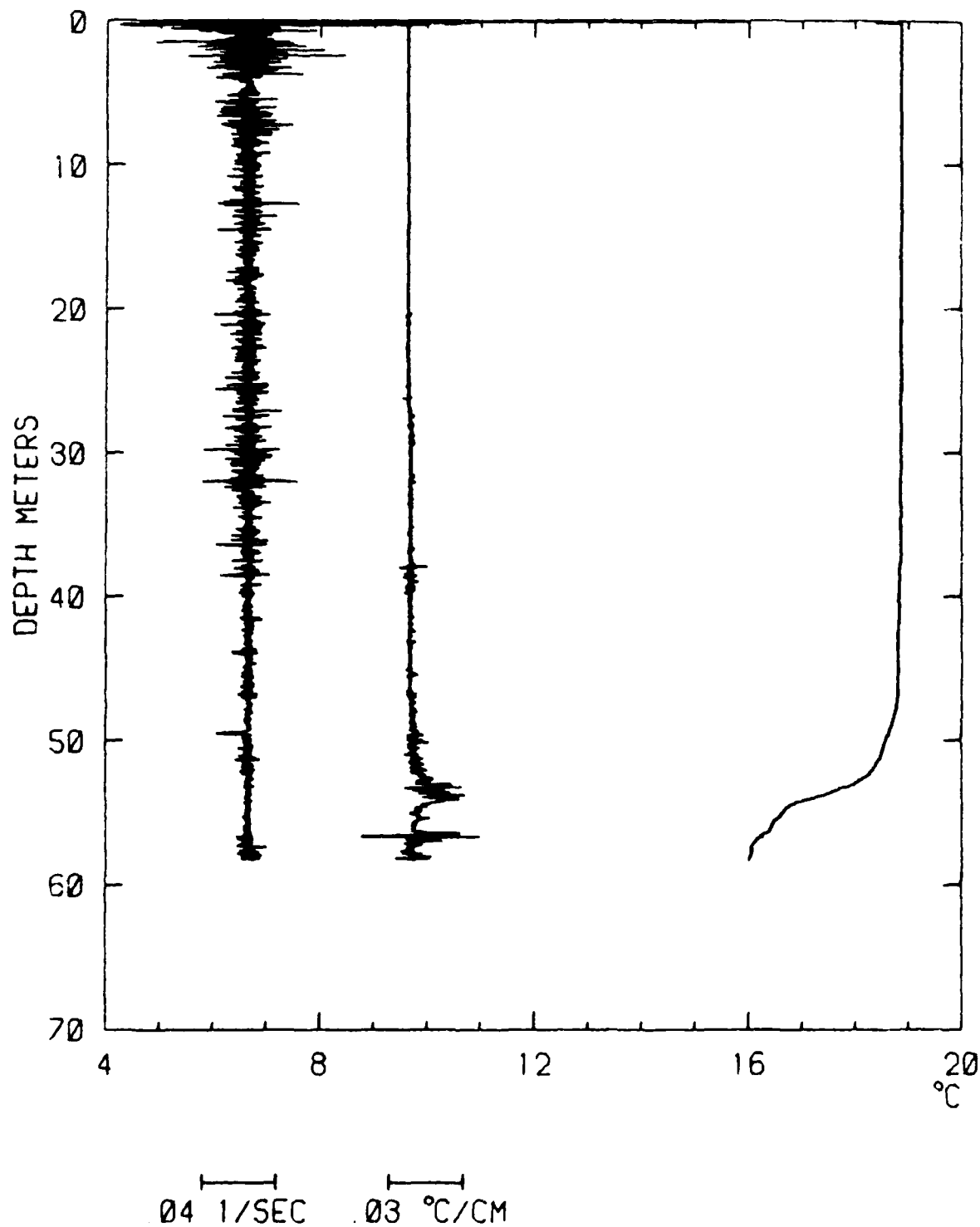
10-NOV-82 22:05

TAPE 64
FILE 5

10-NOV-83 22:13

TAPE 64
FILE 6

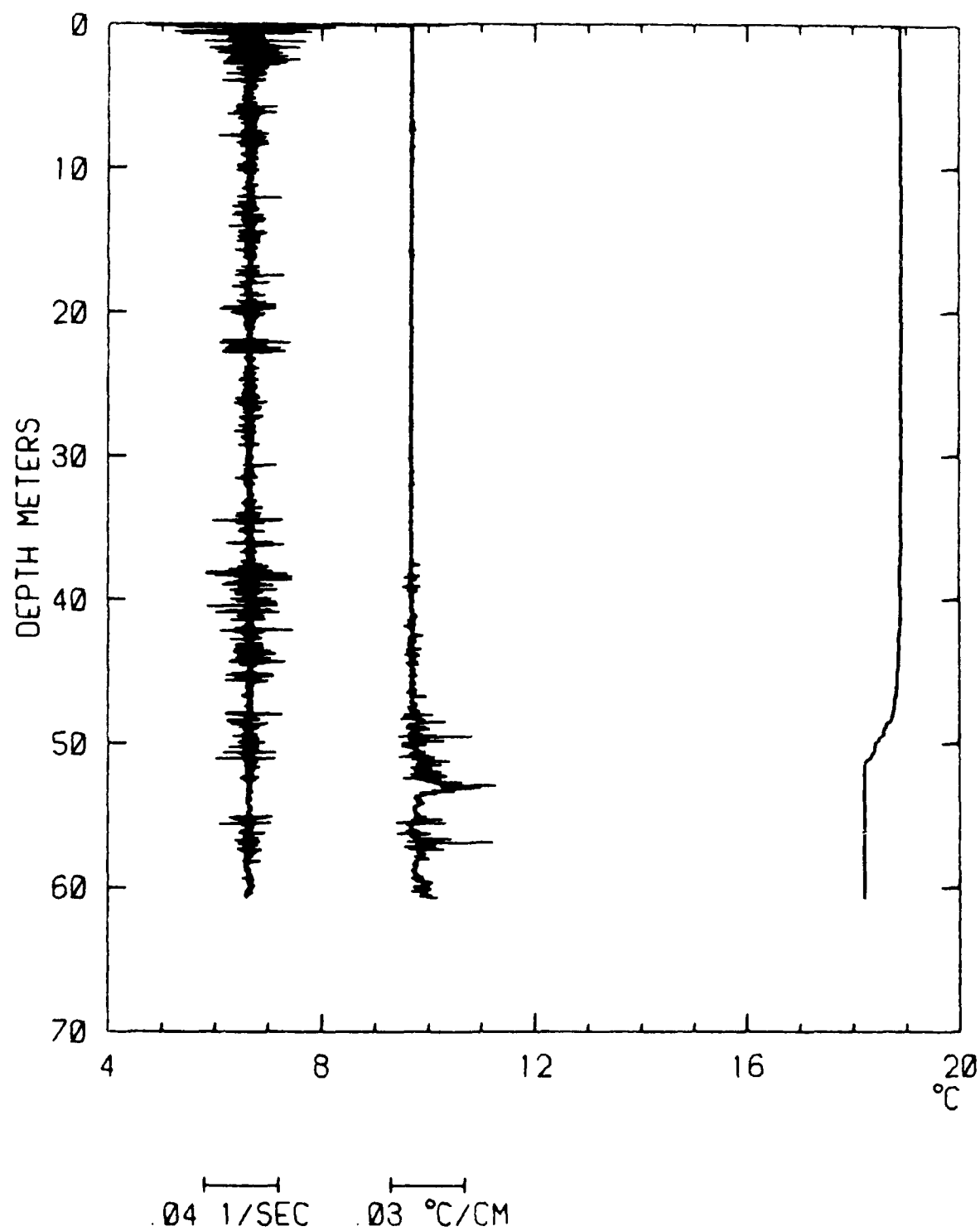
10-NOV-83 22:27

TAPE 64
FILE 7

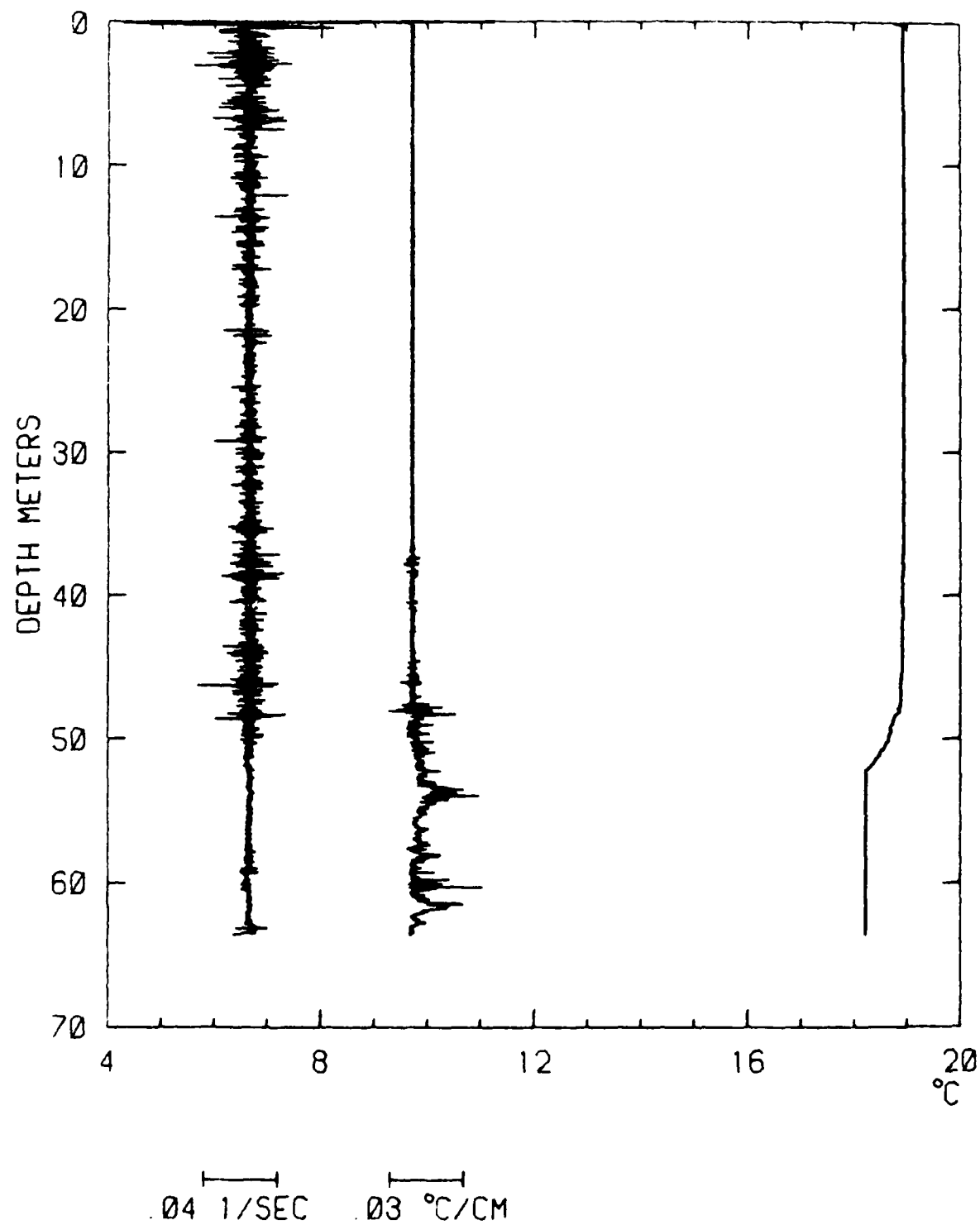
10-NOV-83

159

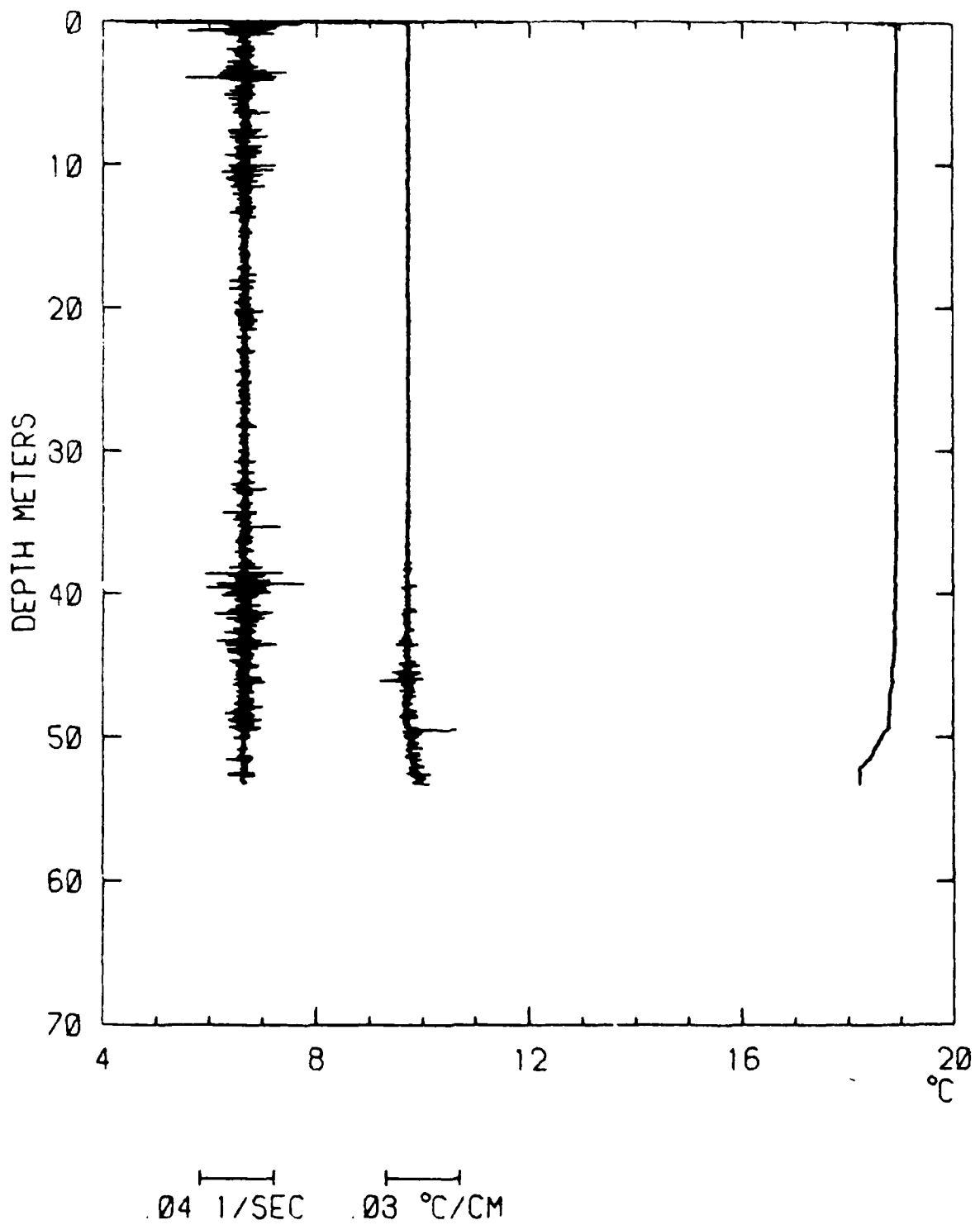
TAPE 64
FILE 8



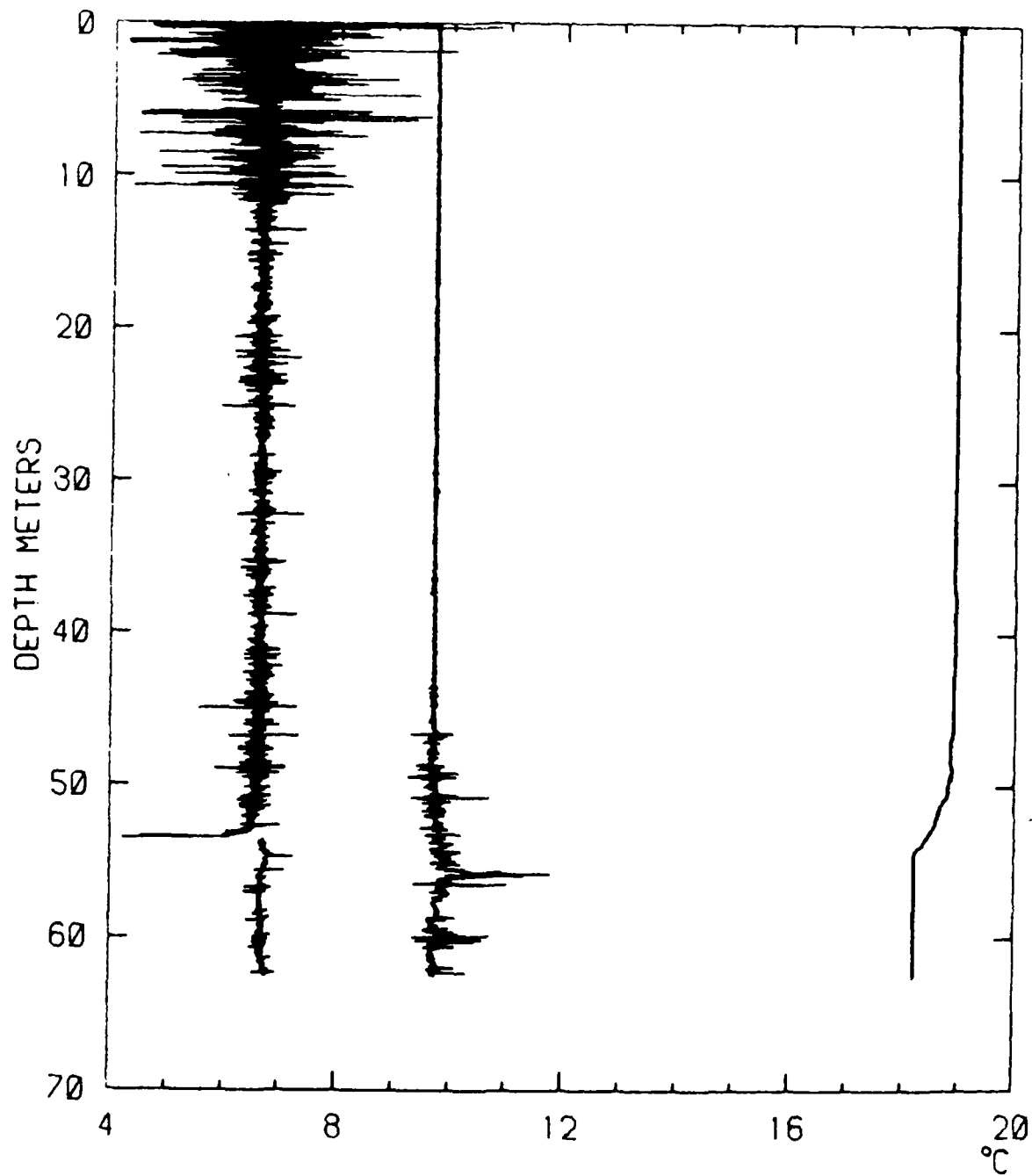
10-NOV-83 22:46

TAPE 64
FILE 9

10-NOV-83 22:54

TAPE 64
FILE 10

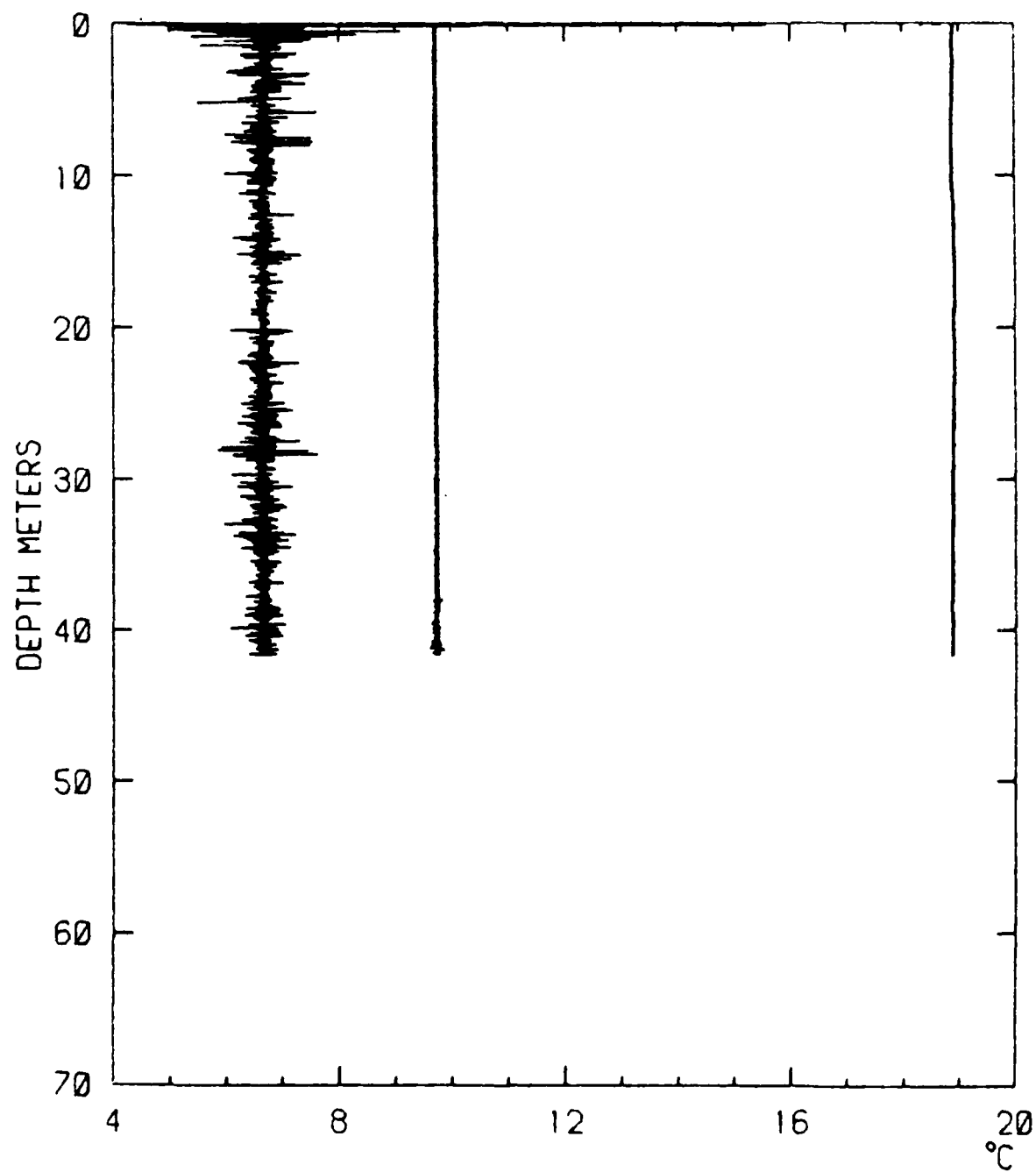
10-NOV-83 23.05

TAPE 64
FILE 11

10-NOV-83 23:13

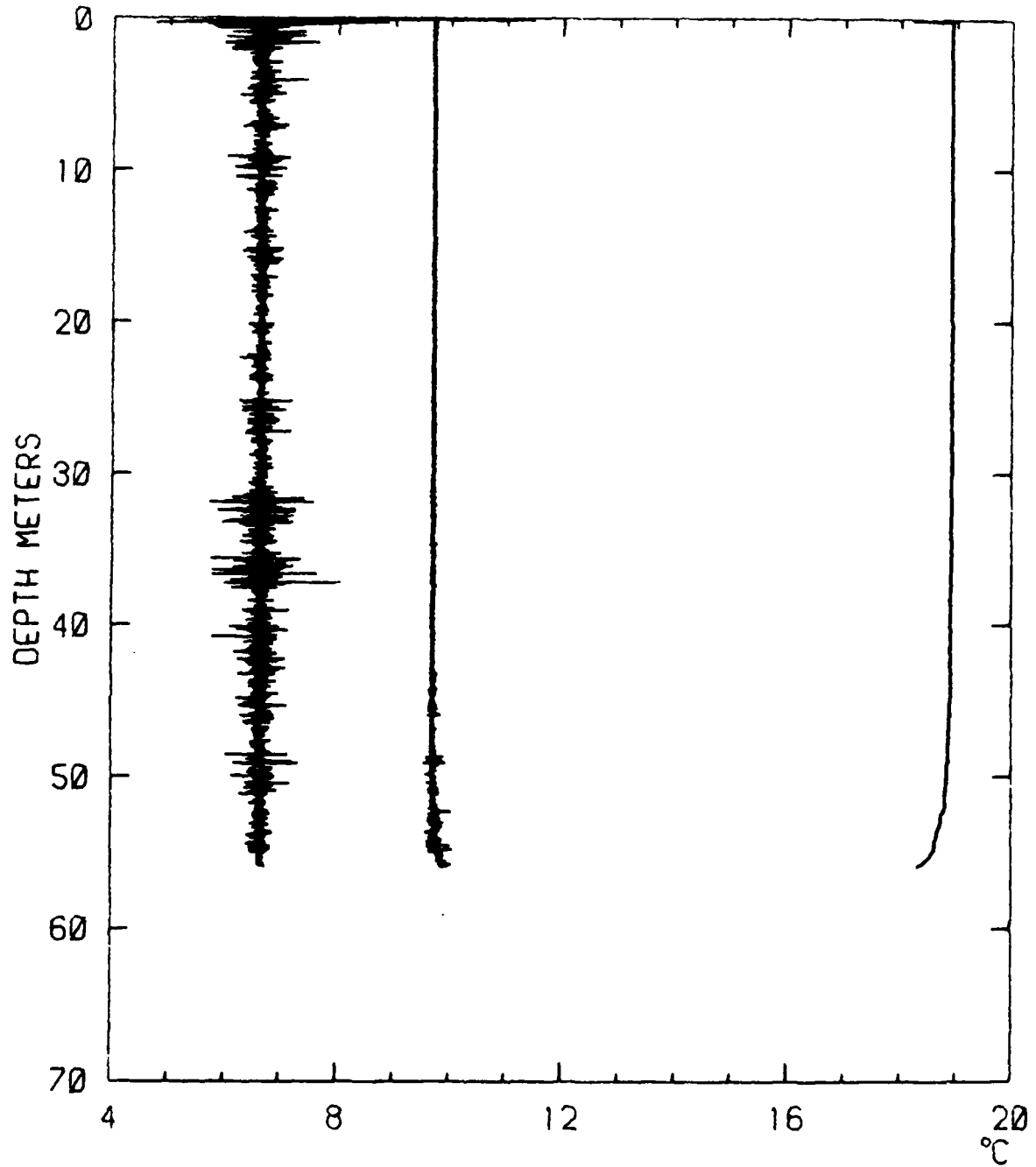
TAPE 64

FILE 12



04 1/SEC 03 °C/CM

10-NOV-83 23:22

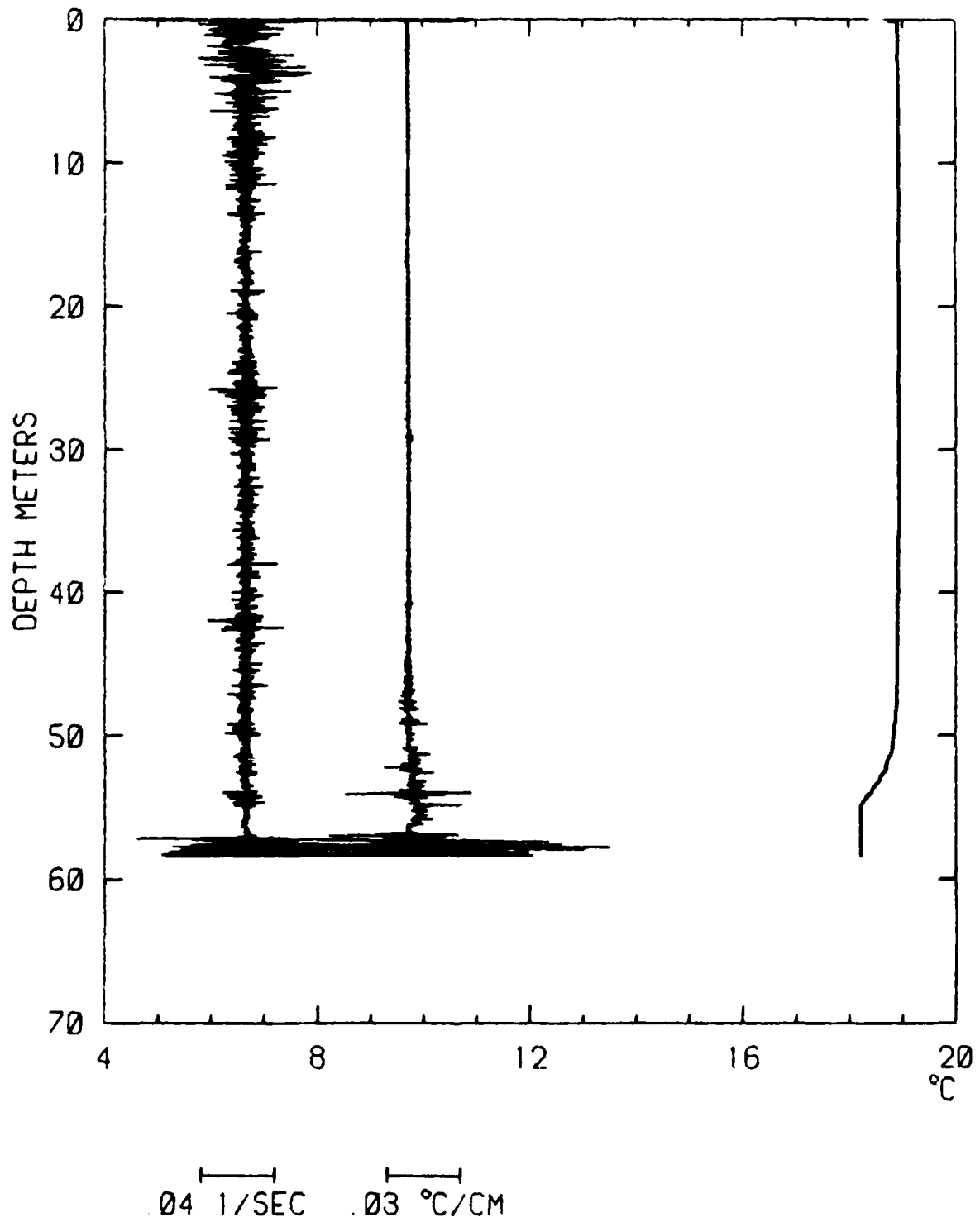
TAPE 64
FILE 13

04 1/SEC 03 °C/CM

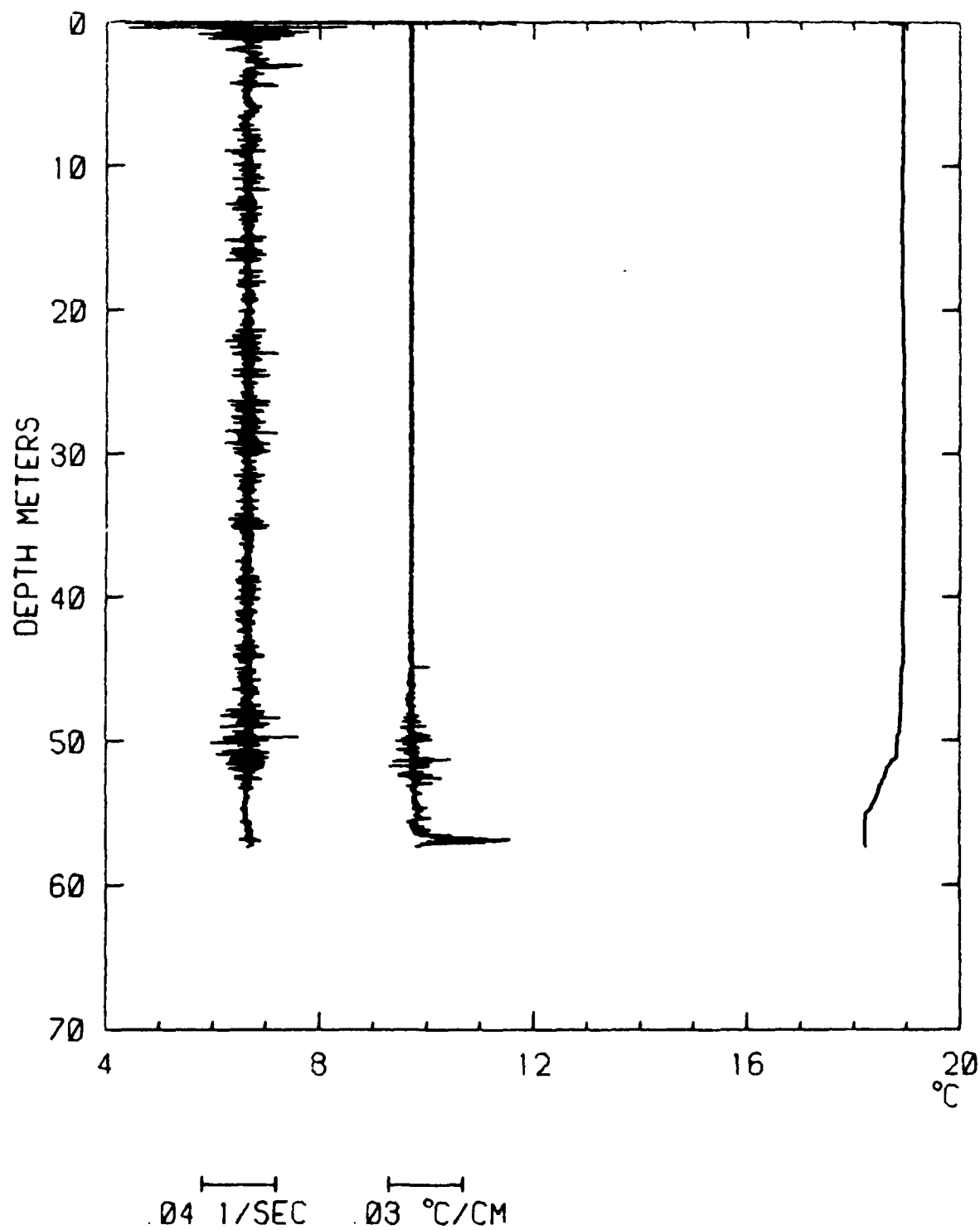
10-NOV-83 23:28

TAPE 64

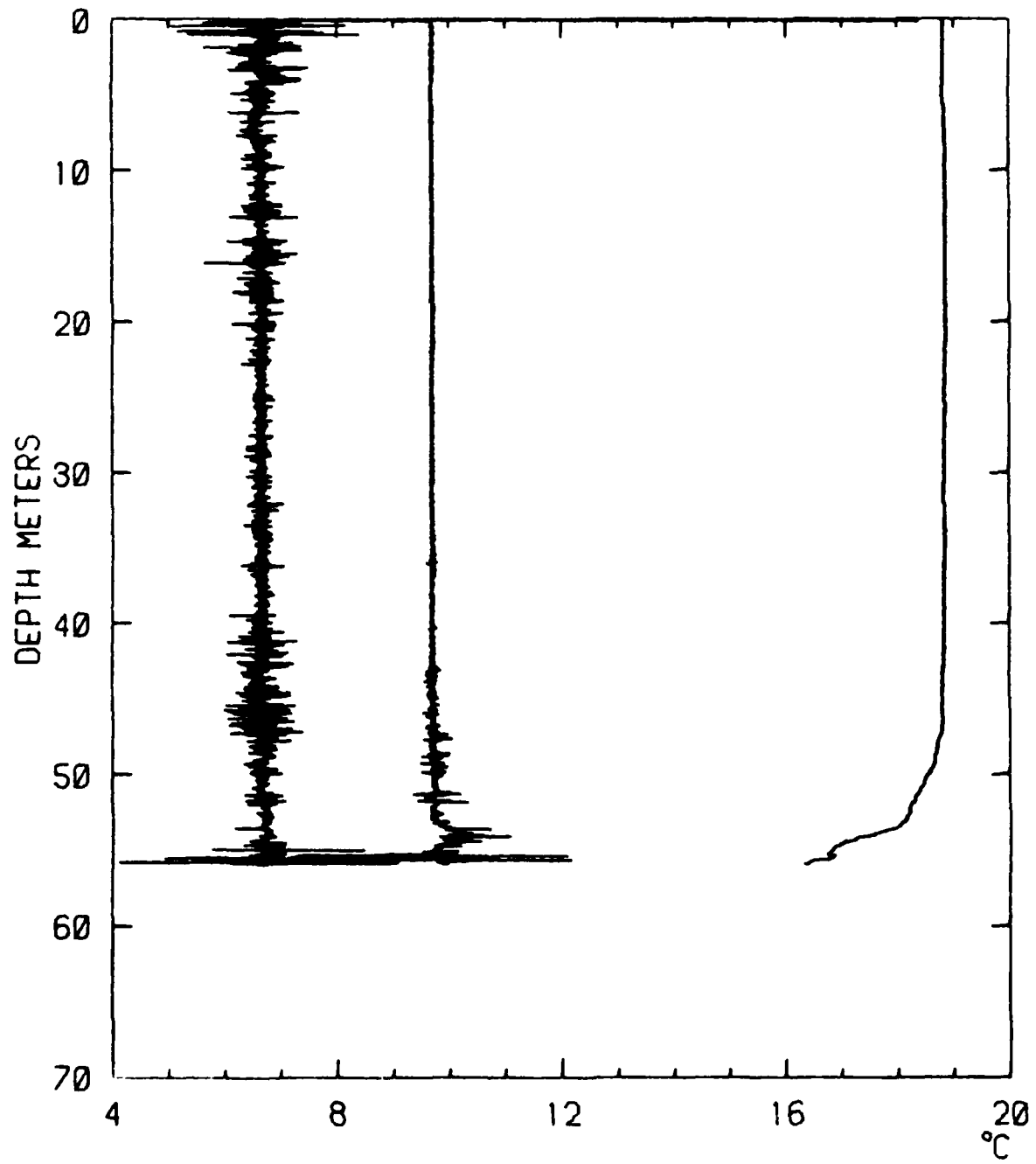
FILE 14



10-NOV-83 23:48

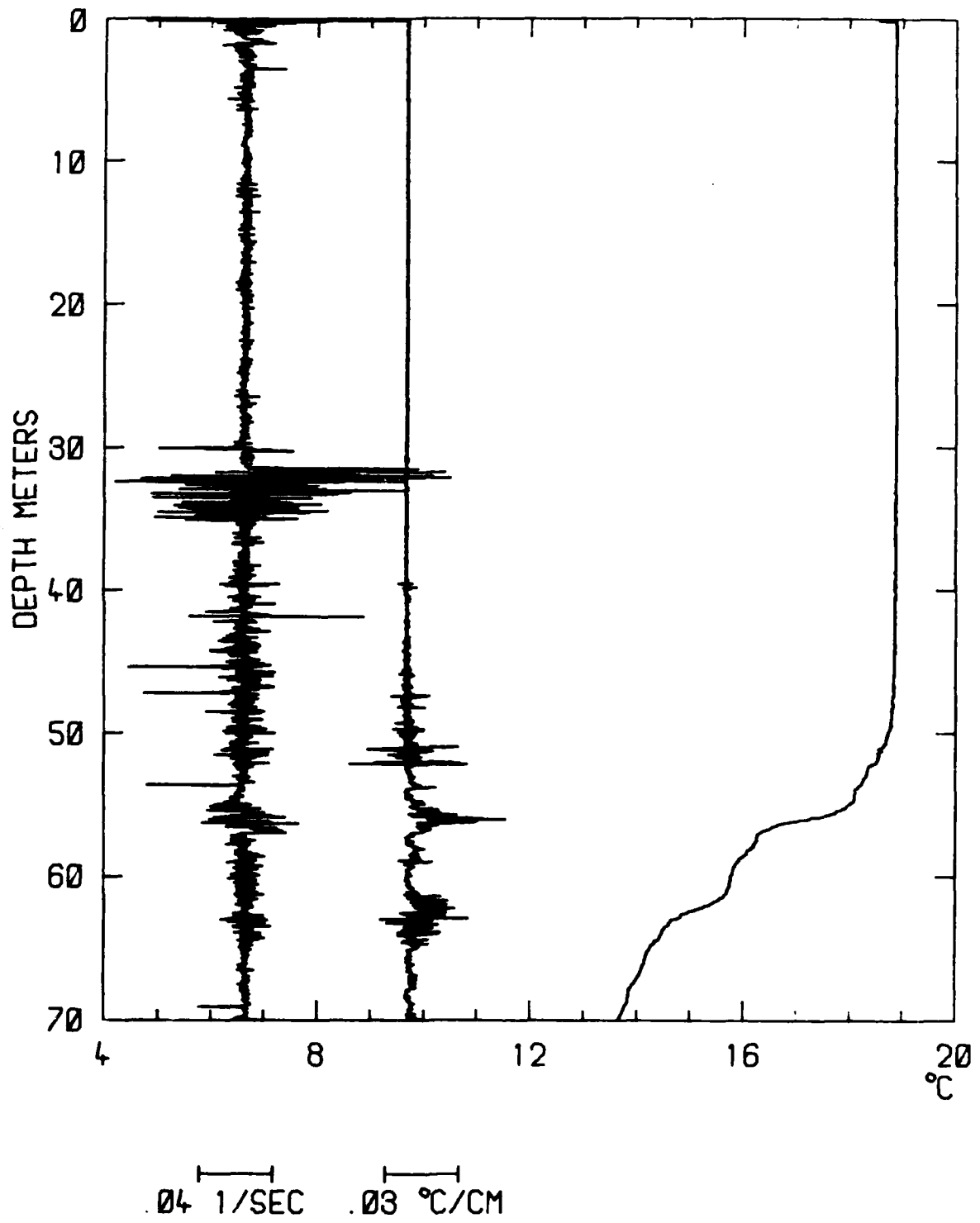
TAPE 64
FILE 15

10-NOV-83 23:50

TAPE 64
FILE 16

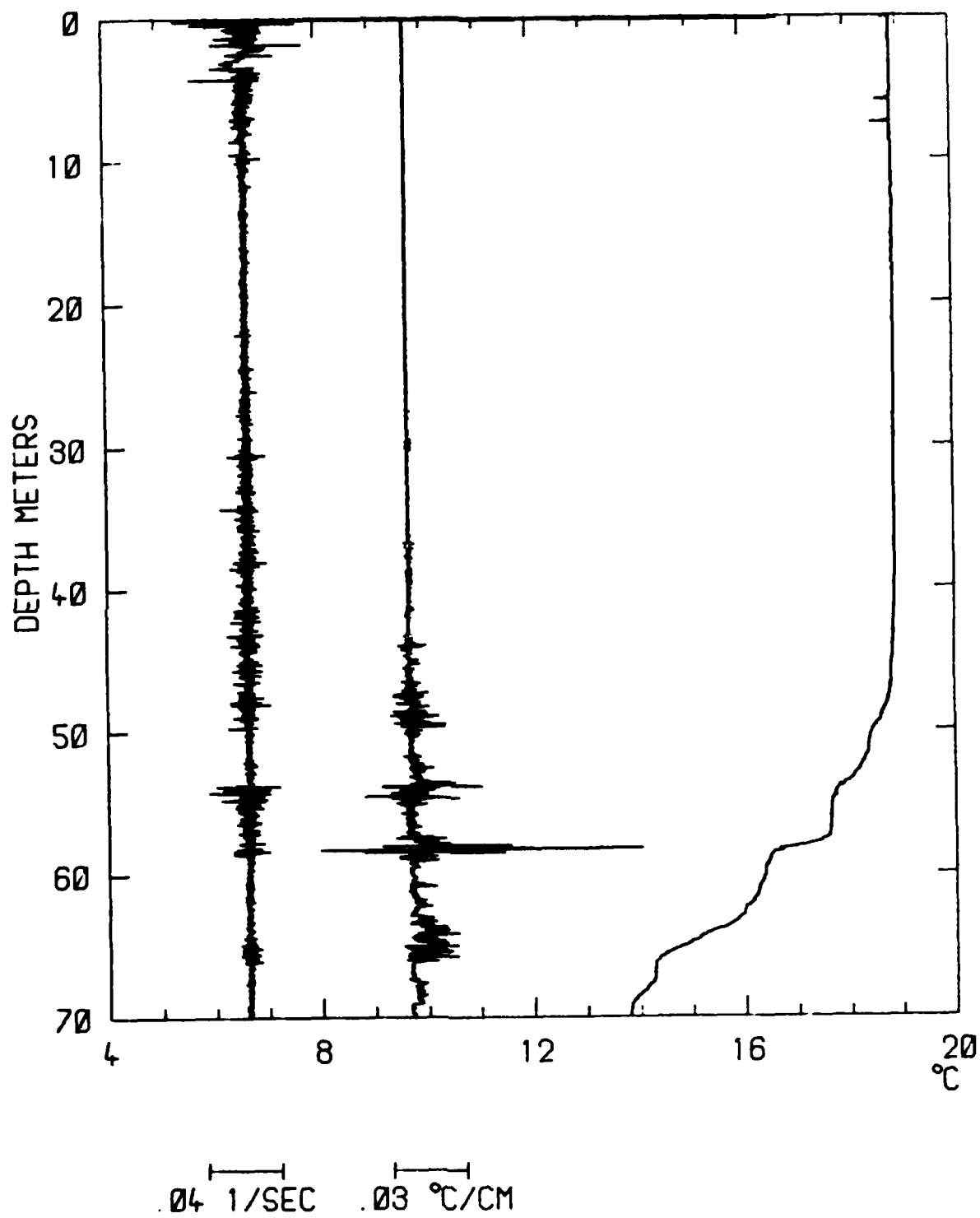
.04 1/SEC .03 °C/CM

11-NOV-83 00:10

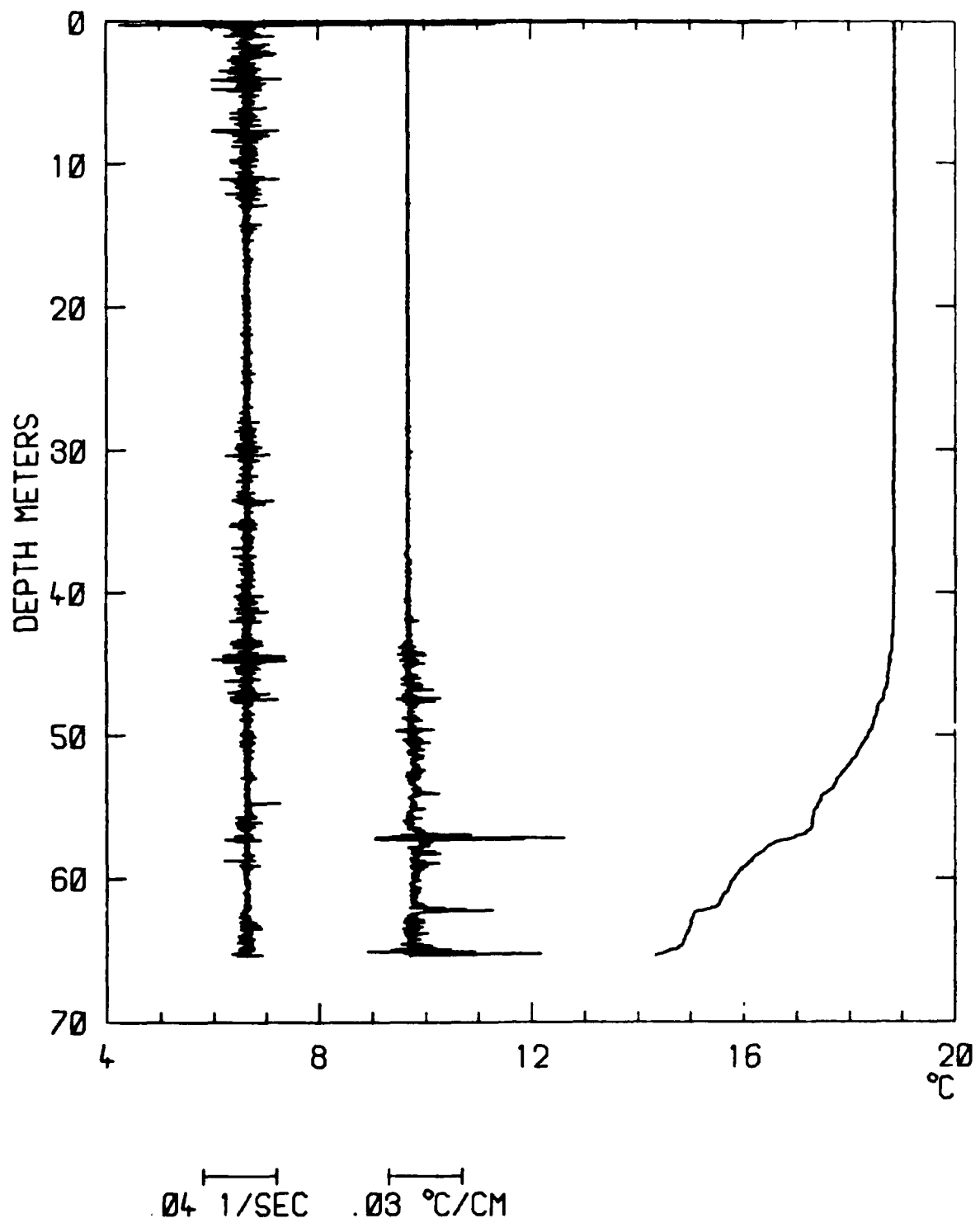
TAPE 65
FILE 1

11-NOV-83 00:20¹⁶⁹

TAPE 65
FILE 2

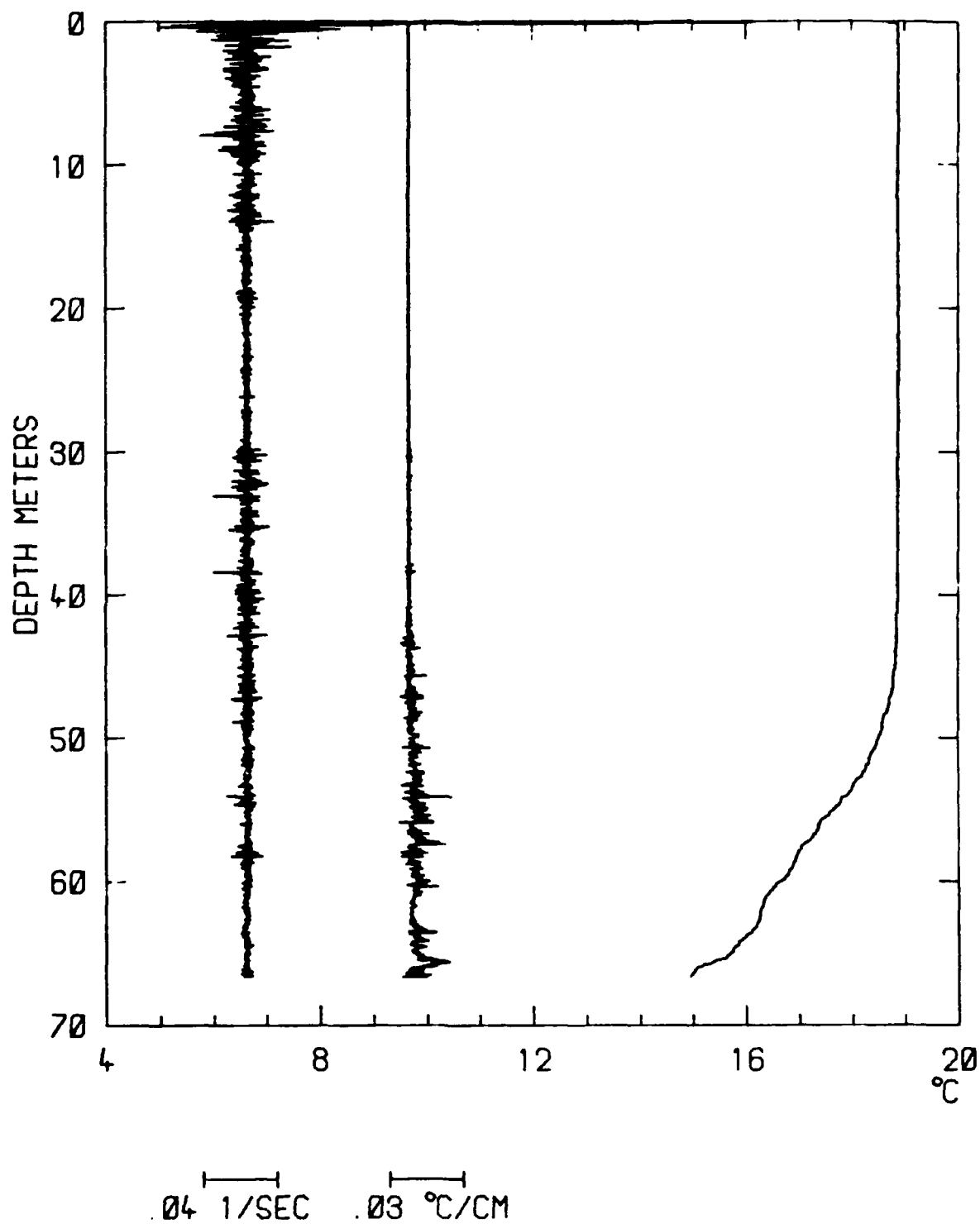


11-NOV-83 00:32

TAPE 65
FILE 3

11-NOV-83 00:42 171

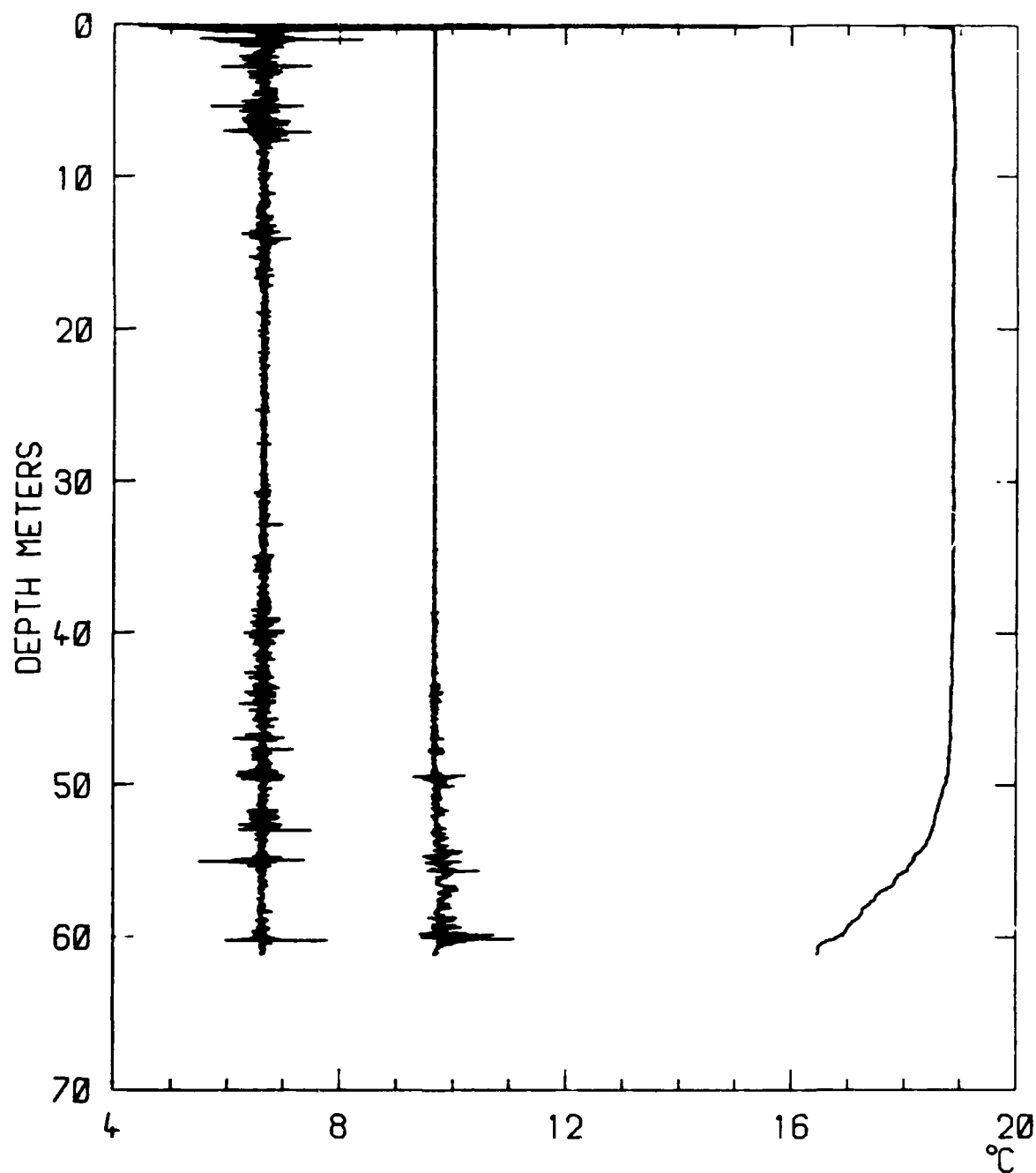
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FILE 4



11-NOV-83 00:51

172

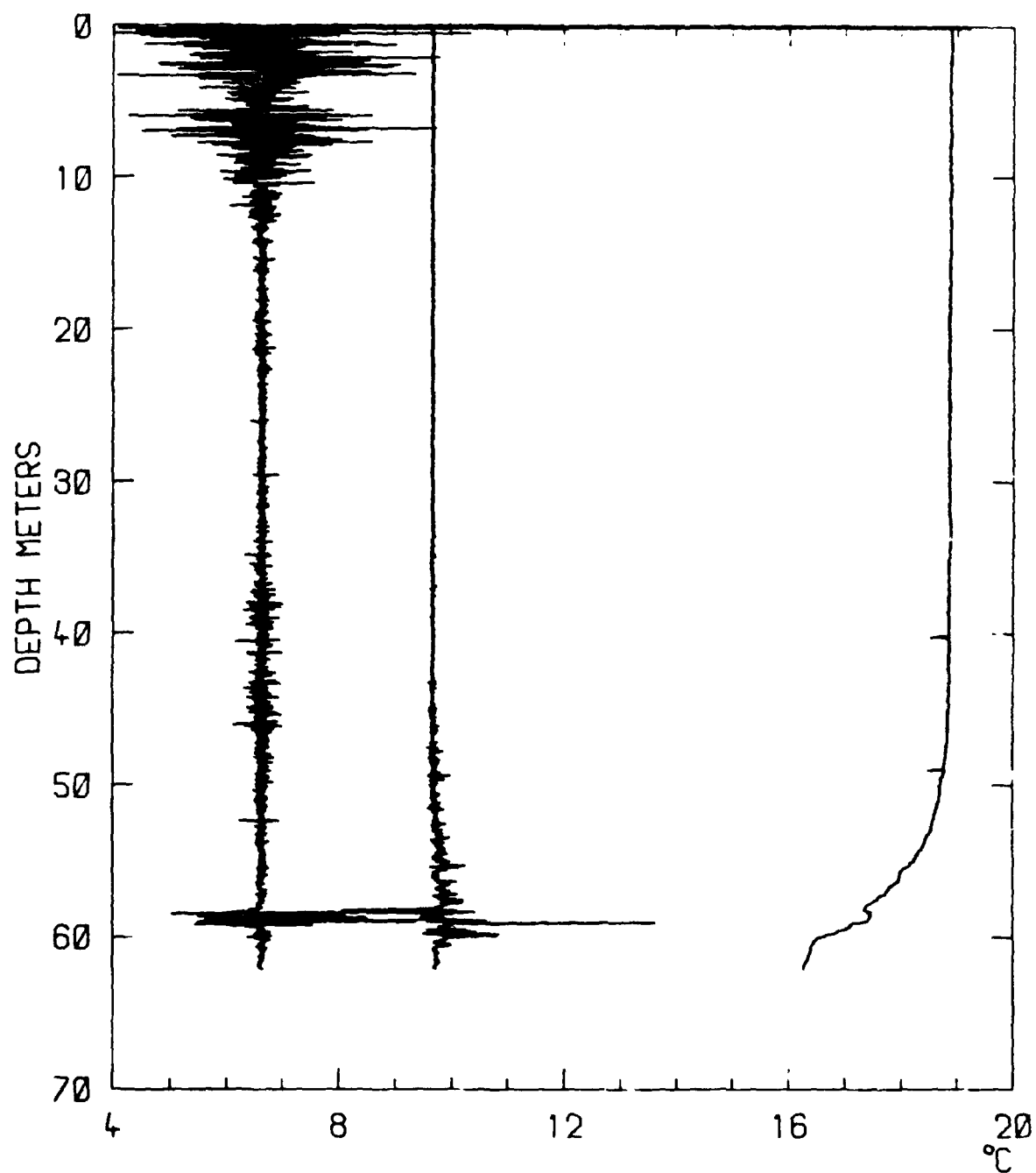
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FILE 5



04 1/SEC 03 °C/CM

11-NOV-83 00:58 175

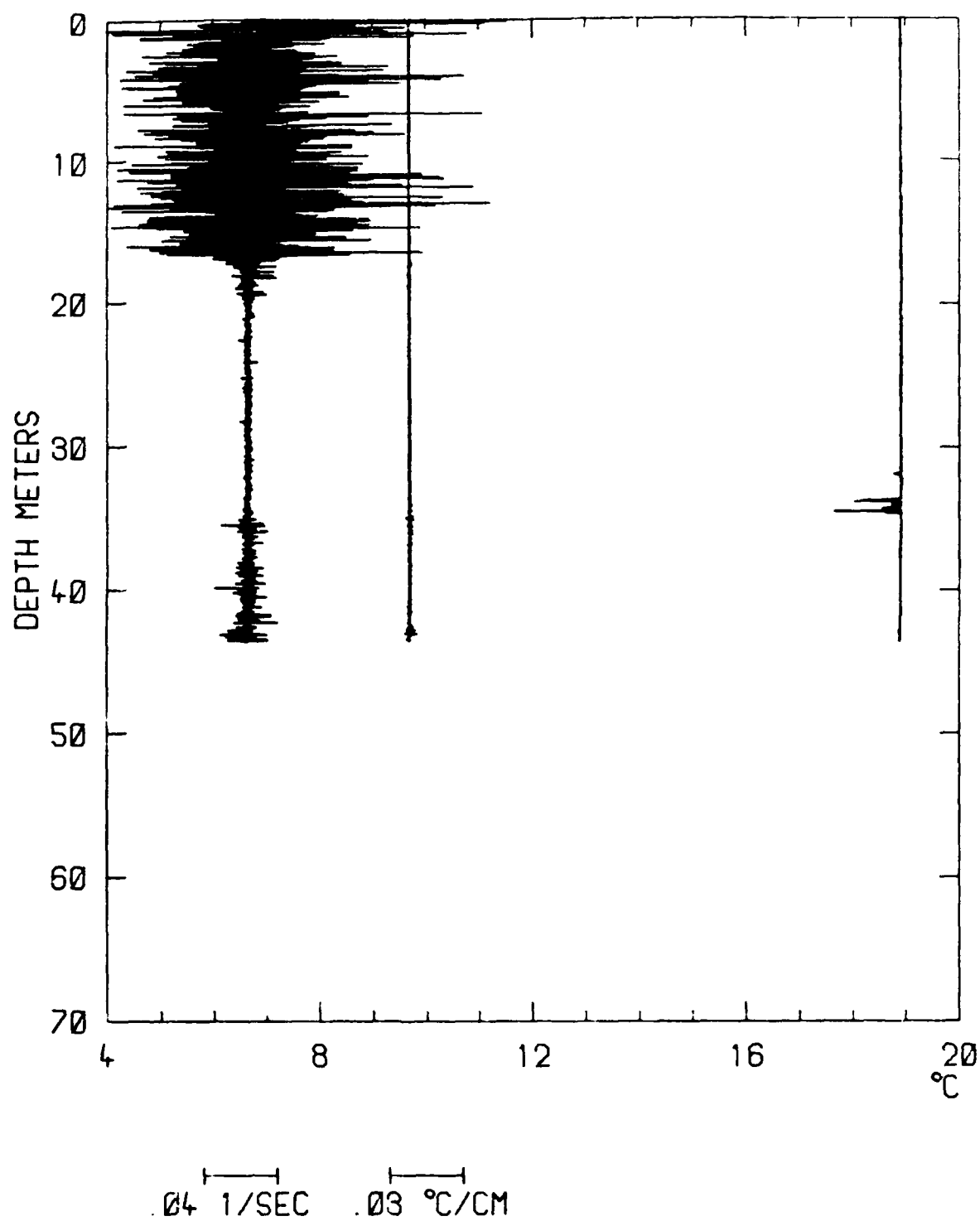
TAPE 65
FILE 6



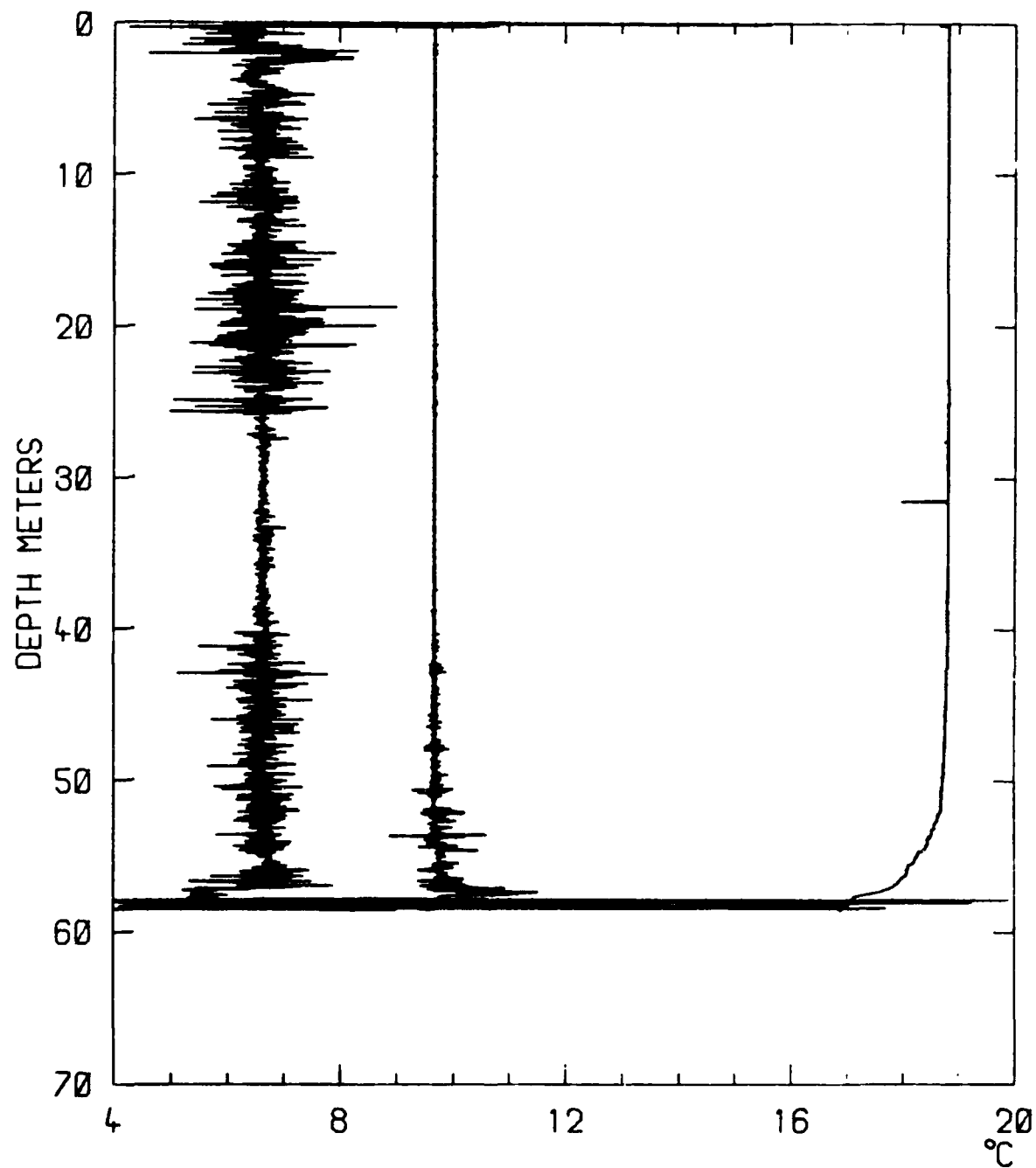
04 1/SEC 03 °C/CM

11-NOV-83 01:06

TAPE 65
FILE 7



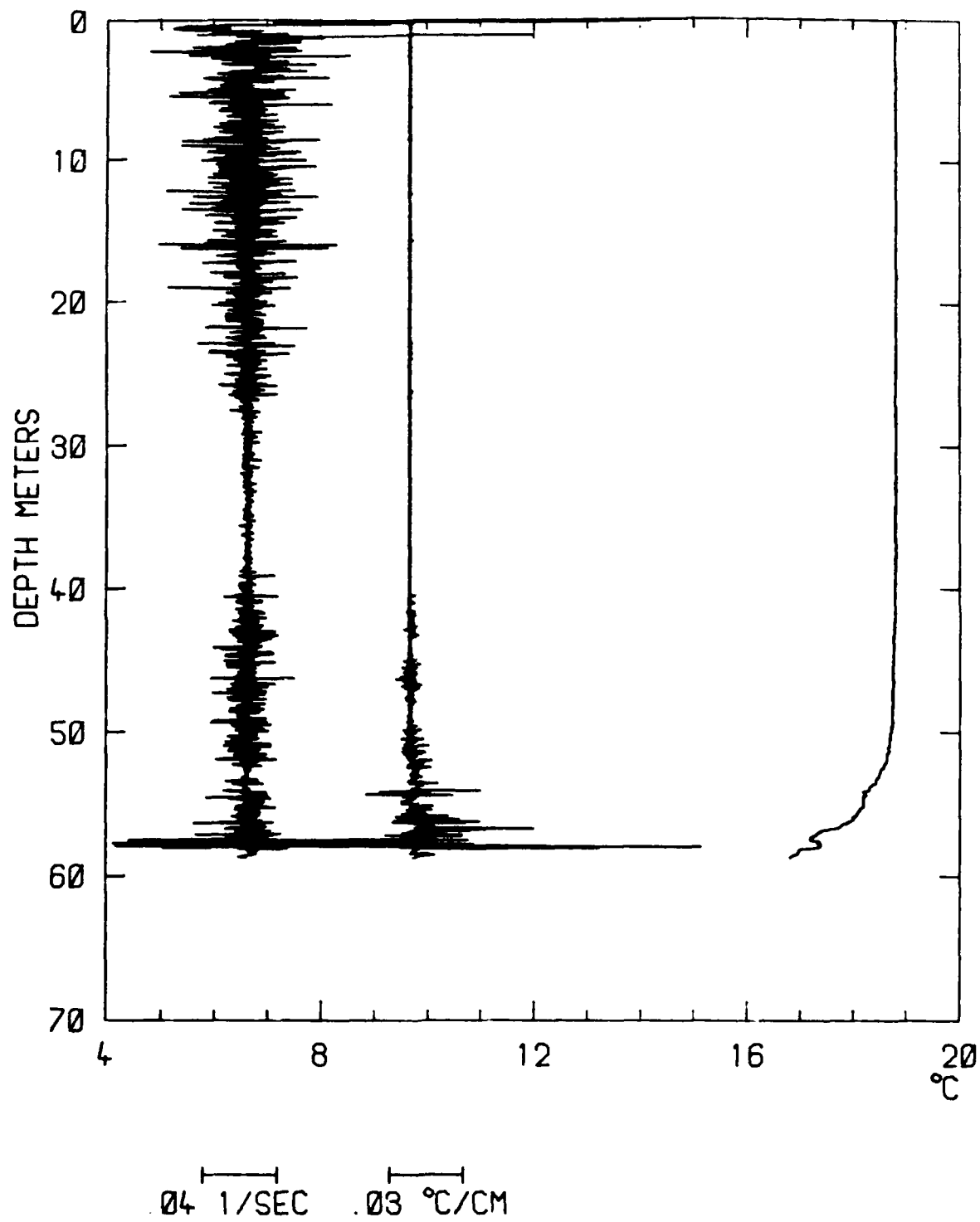
11-NOV-83 01:26

TAPE 65
FILE 8

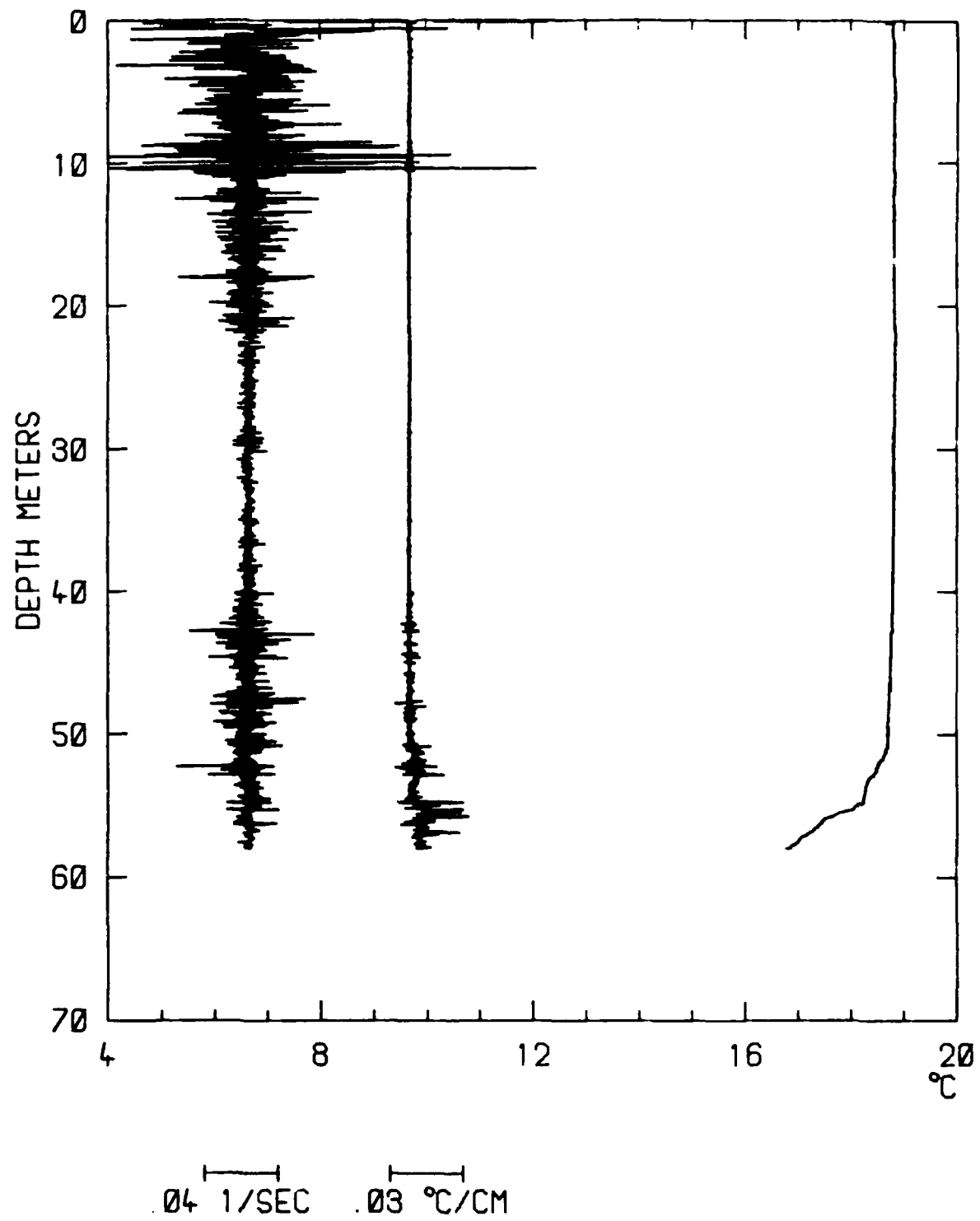
.04 1/SEC .03 °C/CM

11-NOV-83 01:35 176

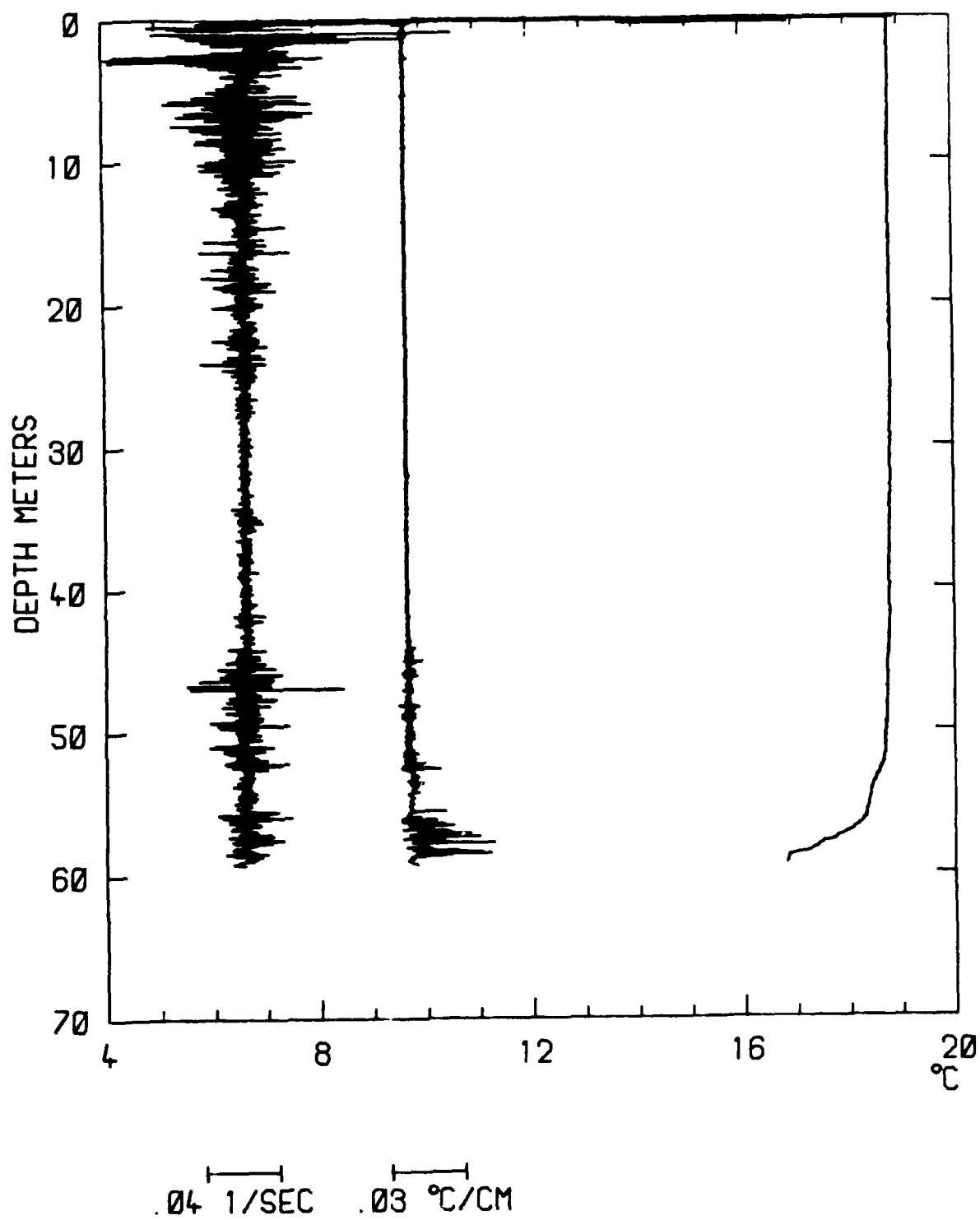
TAPE 65
FILE 9



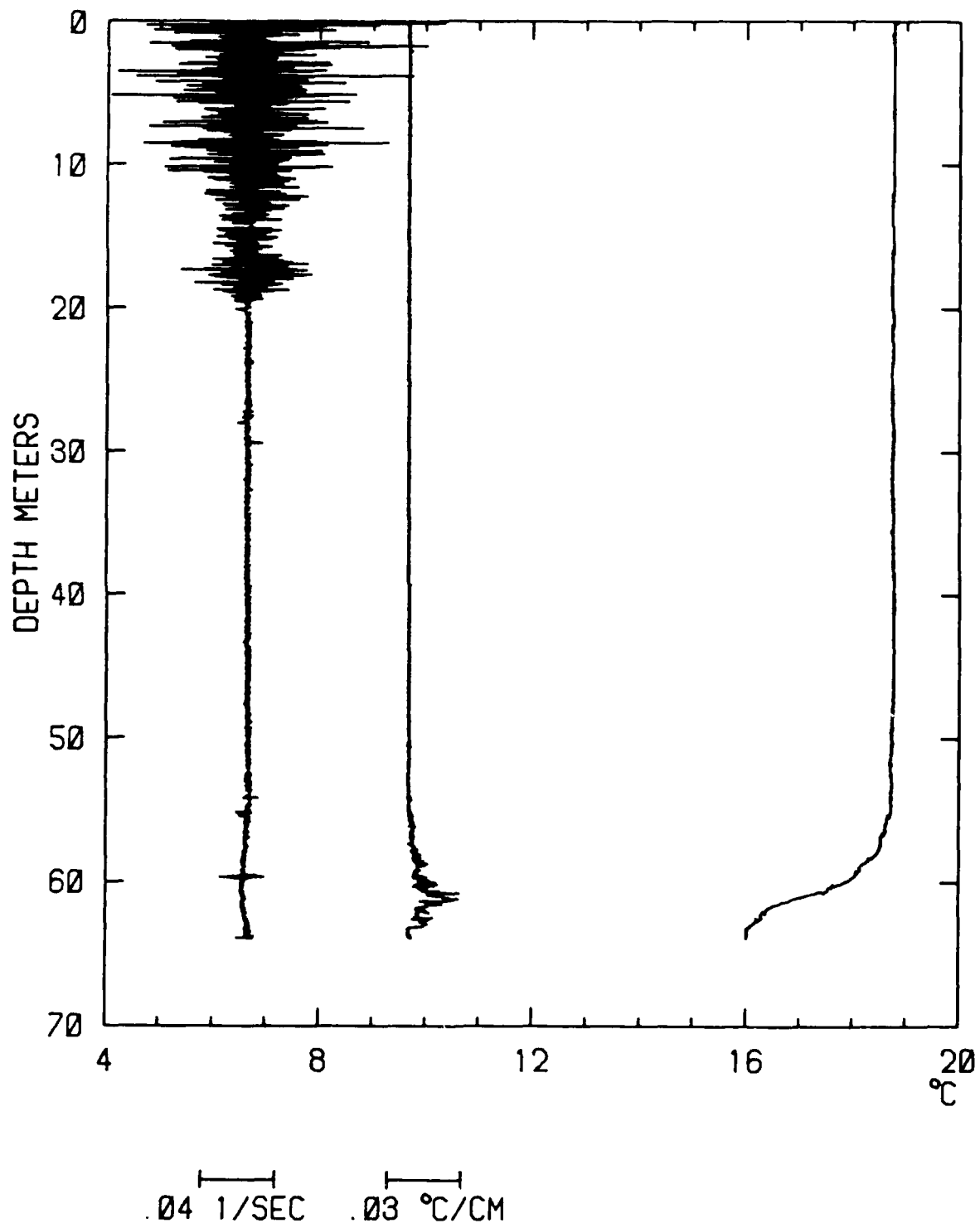
11-NOV-83 01:43

TAPE 65
FILE 10

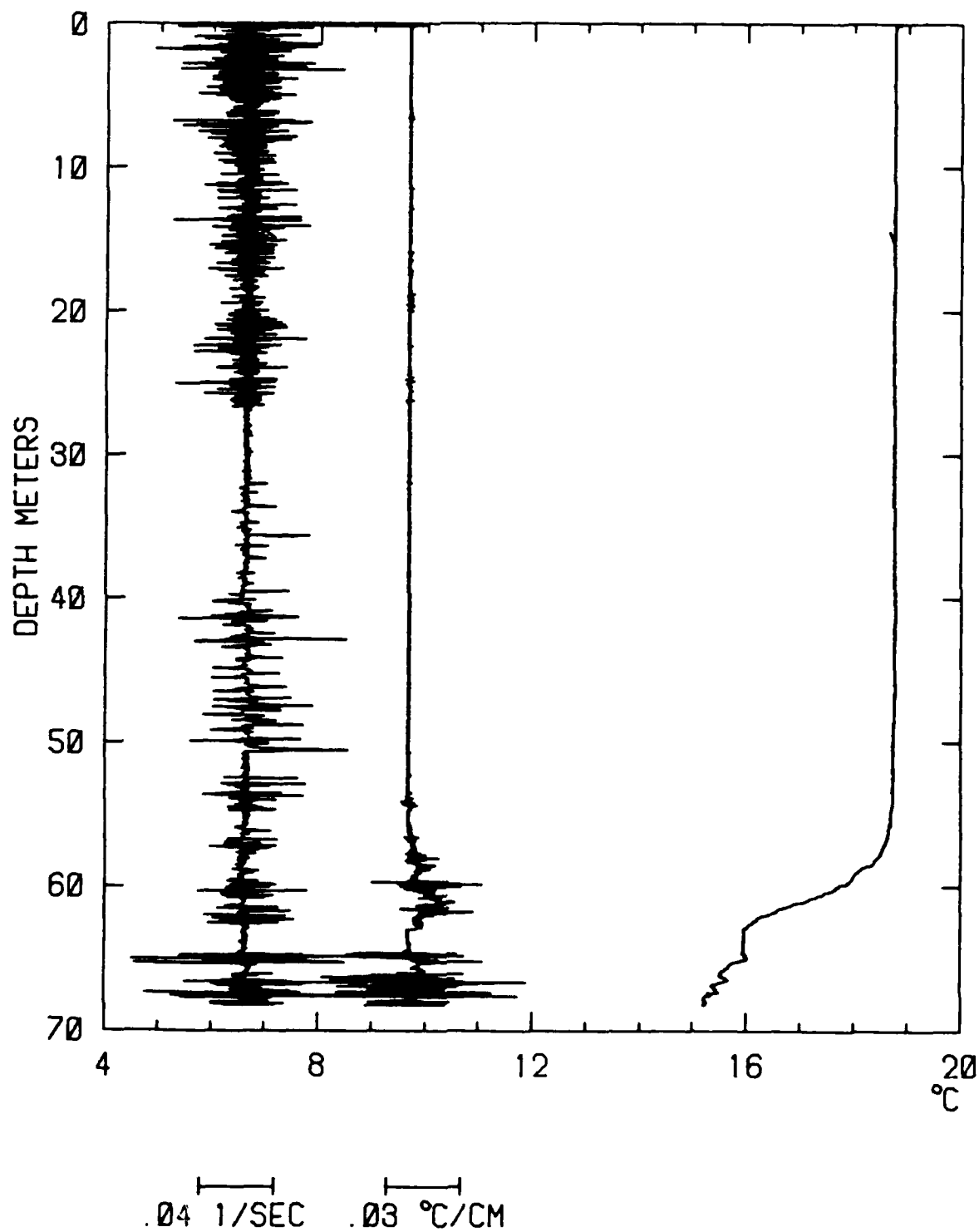
11-NOV-83 01:50

TAPE 65
FILE 11

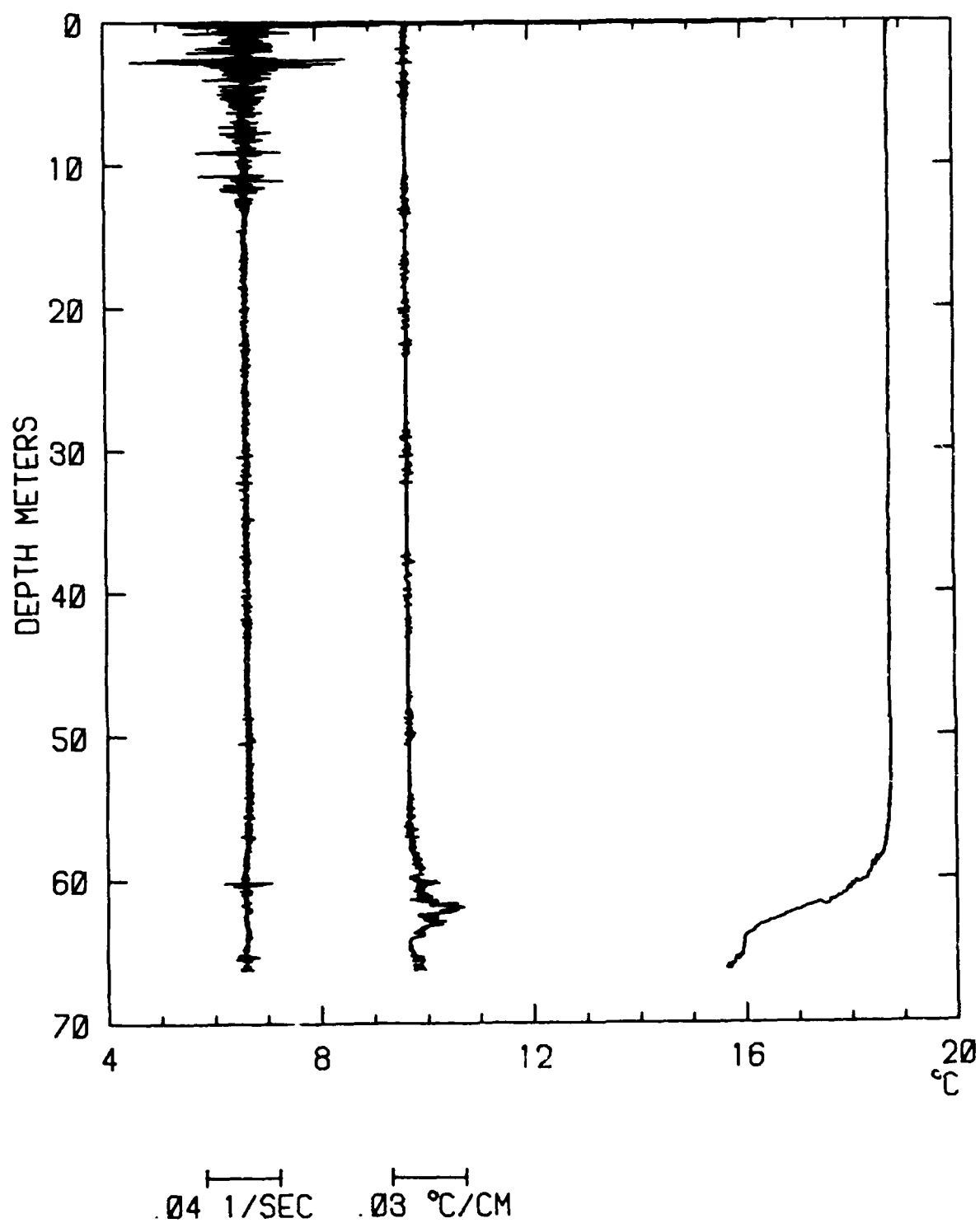
12-NOV-83 16:53

TAPE 67
FILE 1

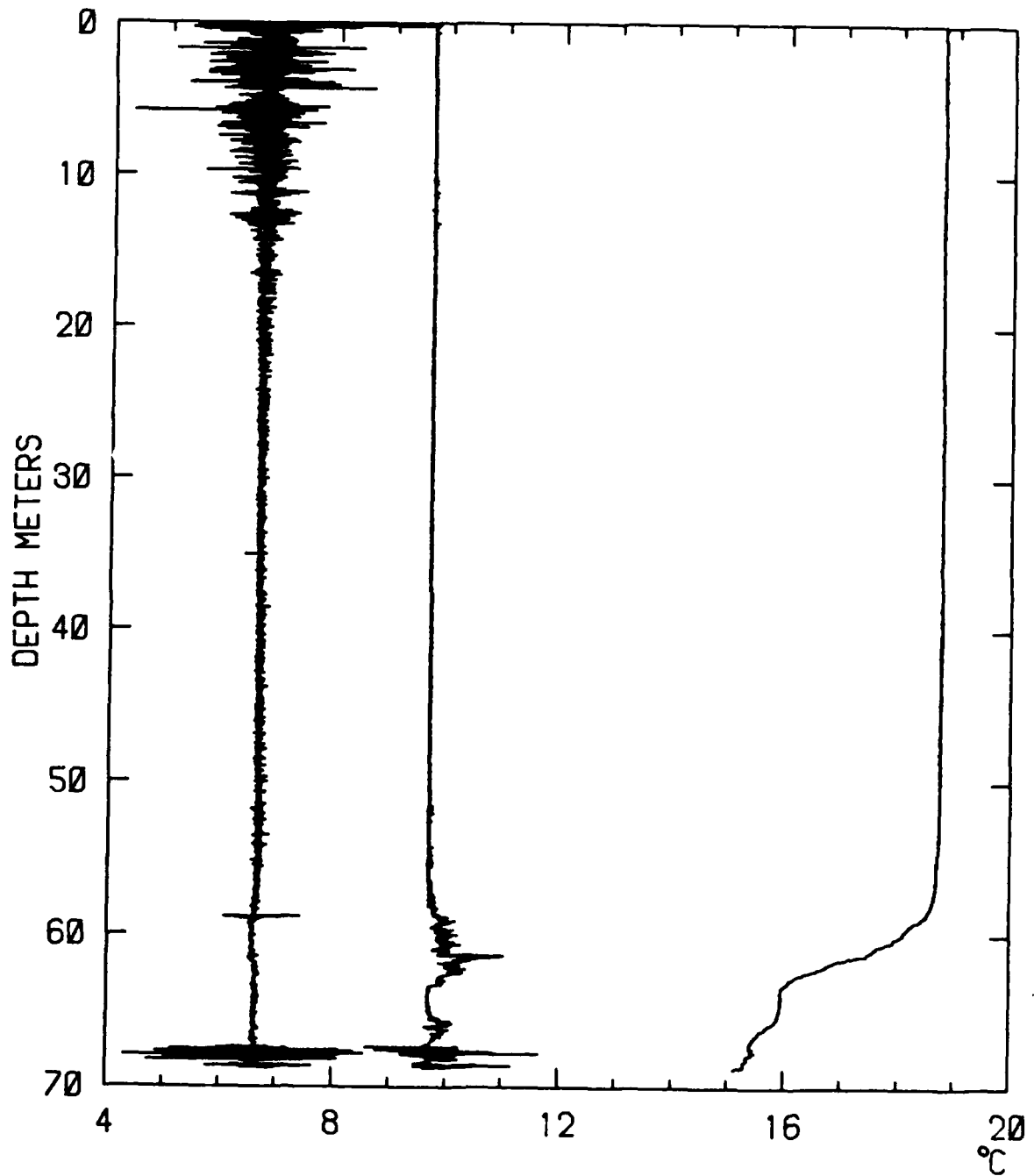
12-NOV-83 17:01

TAPE 67
FILE 2

12-NOV-83 17:10

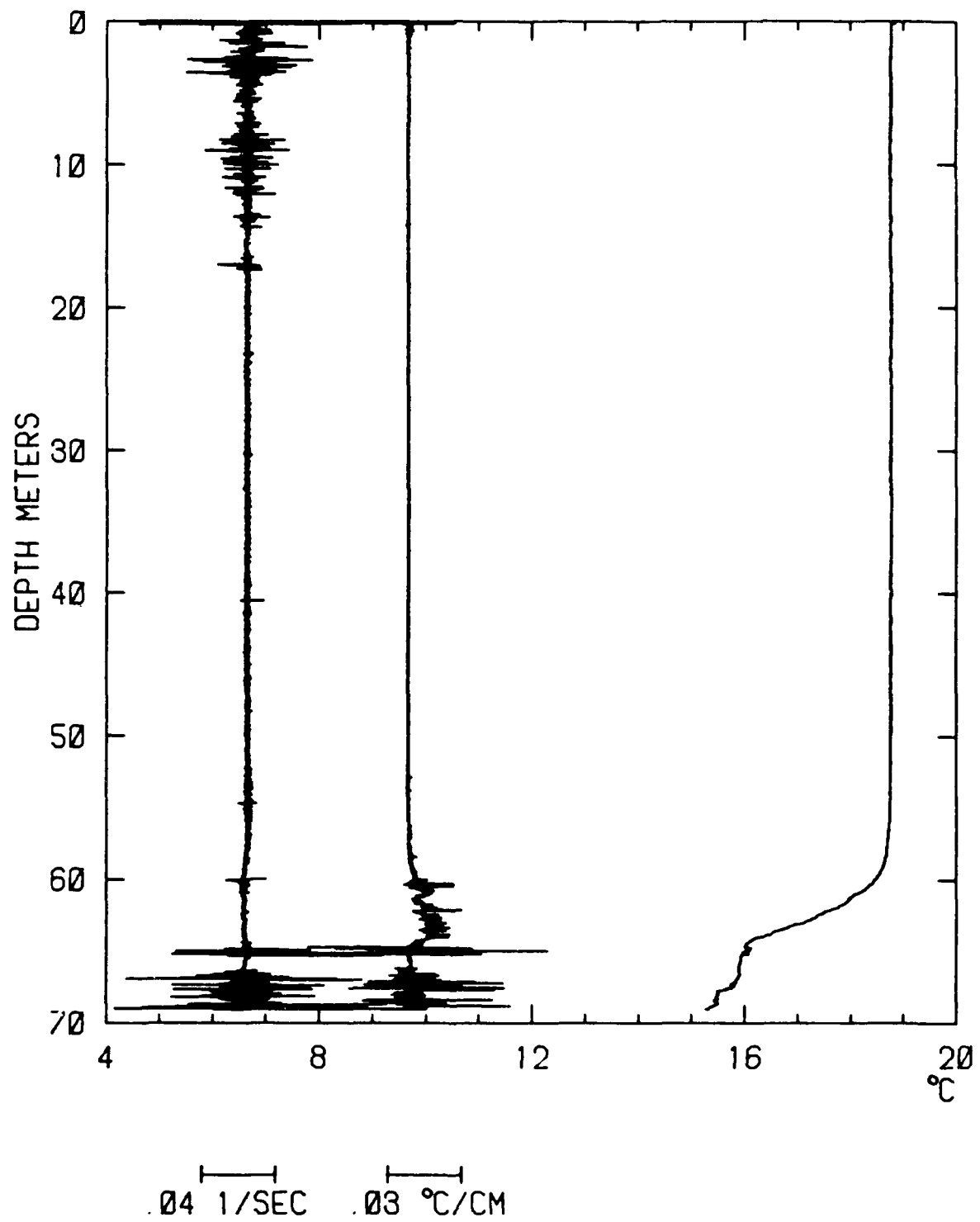
TAPE 67
FILE 3

12-NOV-83 17:19

TAPE 67
FILE 4

.04 1/SEC .03 °C/CM

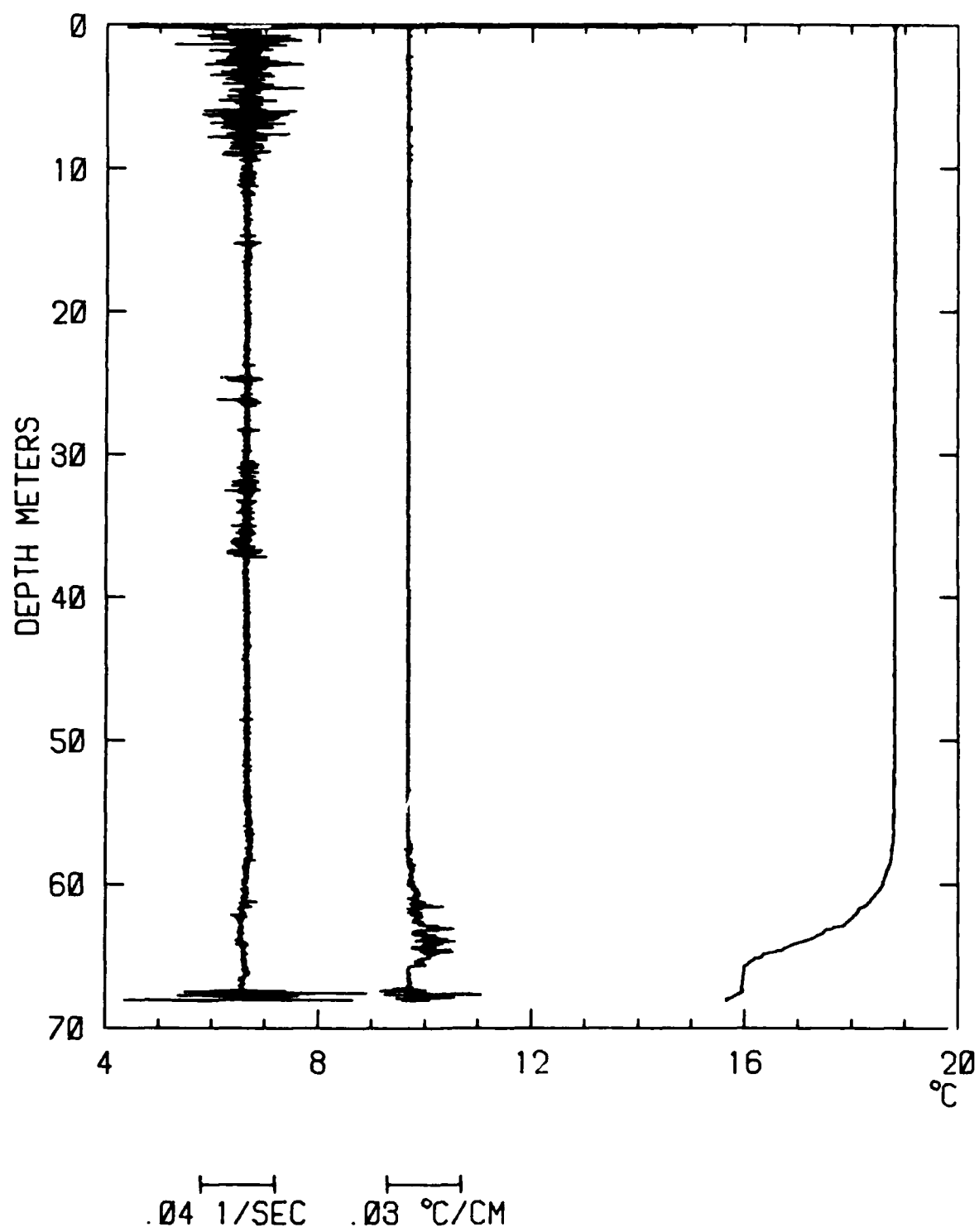
12-NOV-83 17:29

TAPE 67
FILE 5

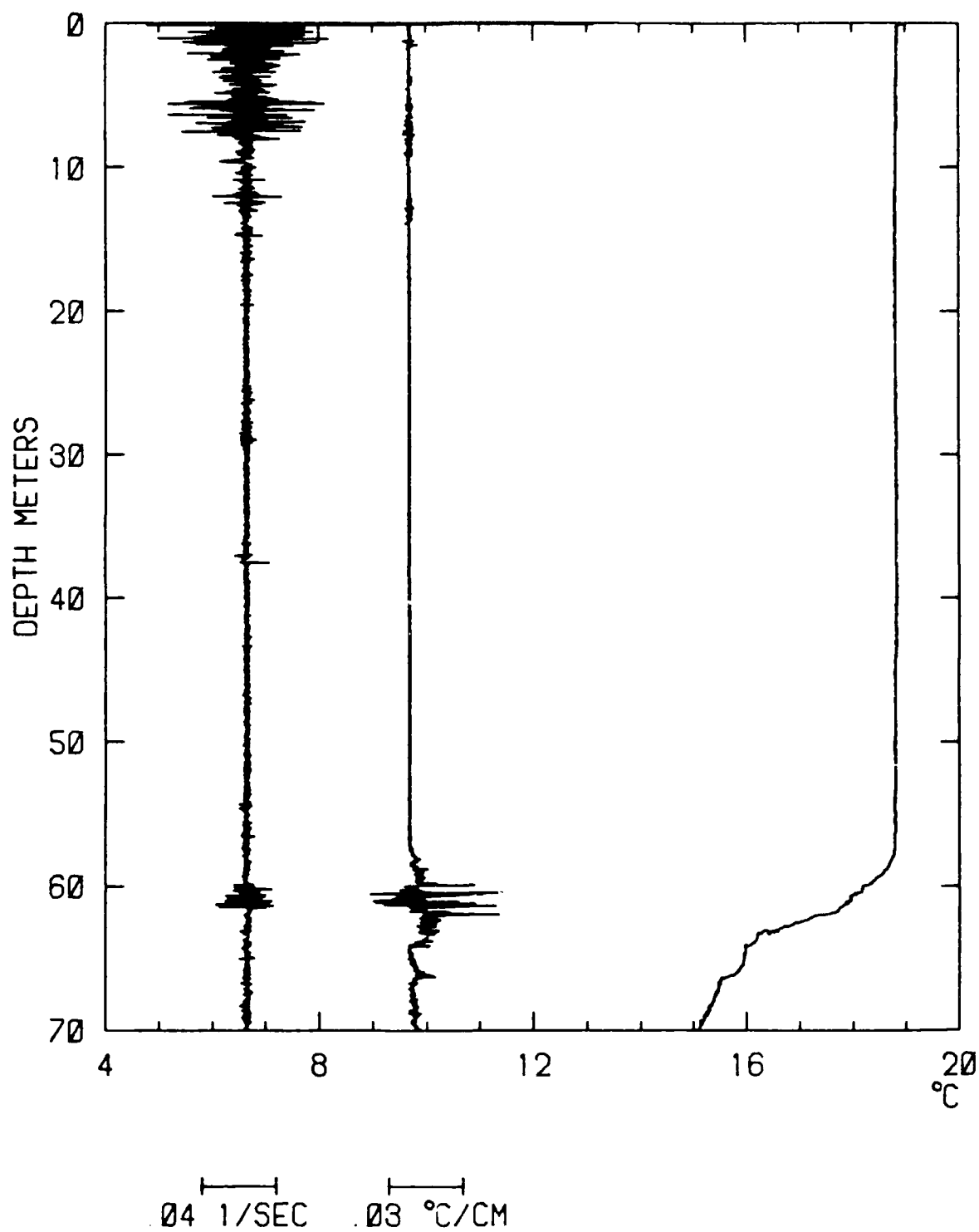
12-NOV-83 17:36

181

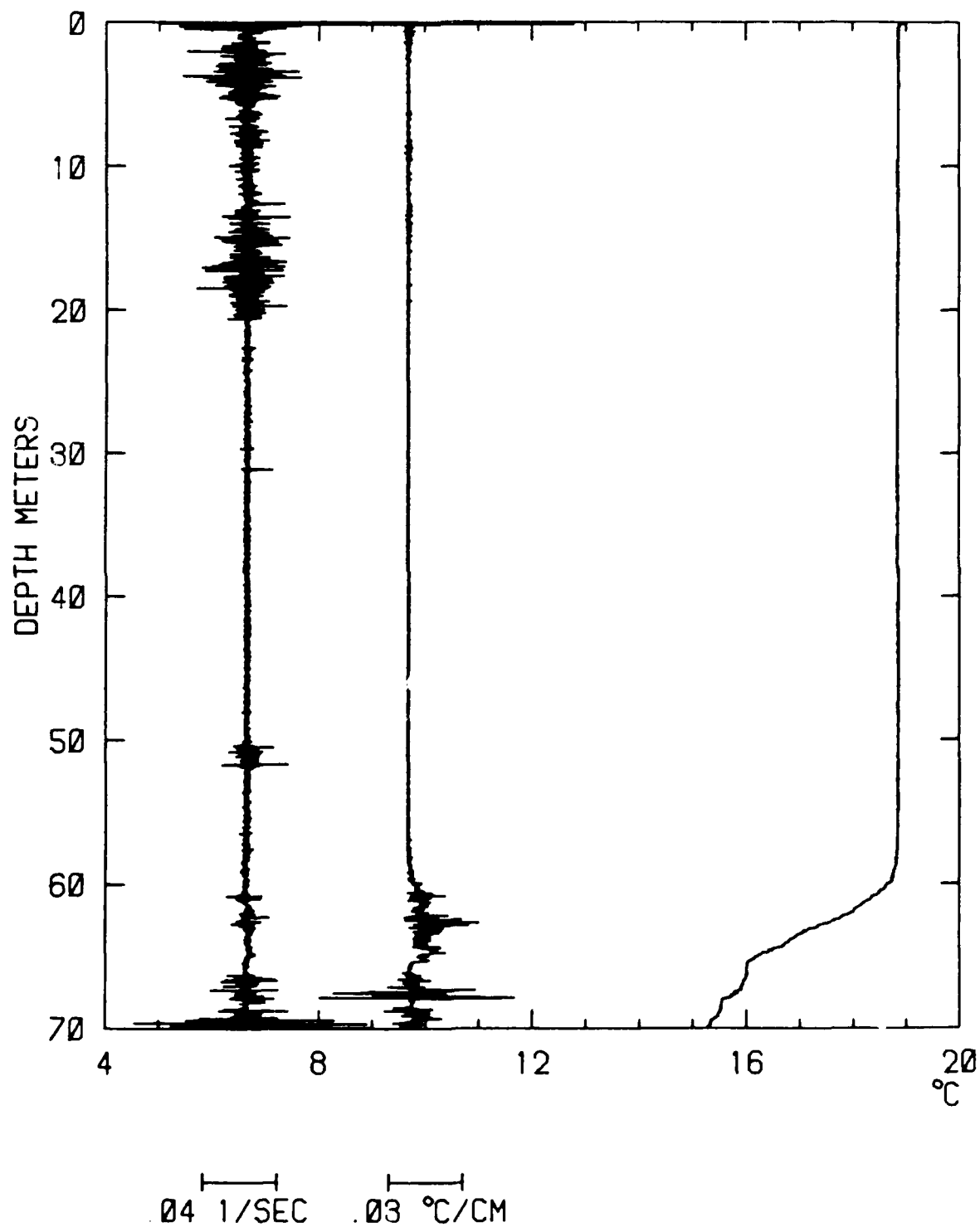
TAPE 67
FILE 6



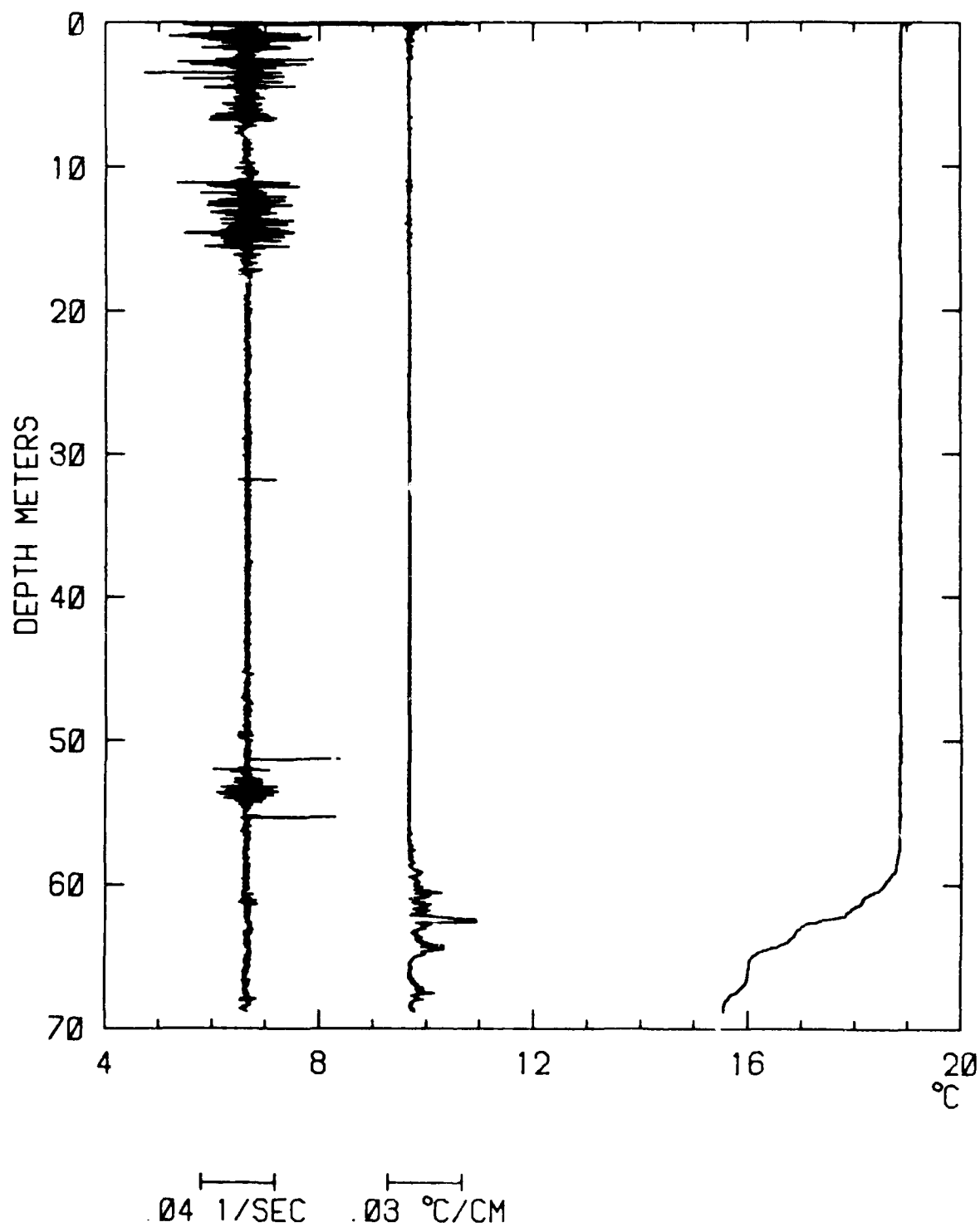
12-NOV-83 17:55

TAPE 67
FILE 8

12-NOV-83 18:05

TAPE 67
FILE 9

12-NOV-83 18:14

TAPE 67
FILE 10

AD-A141 048

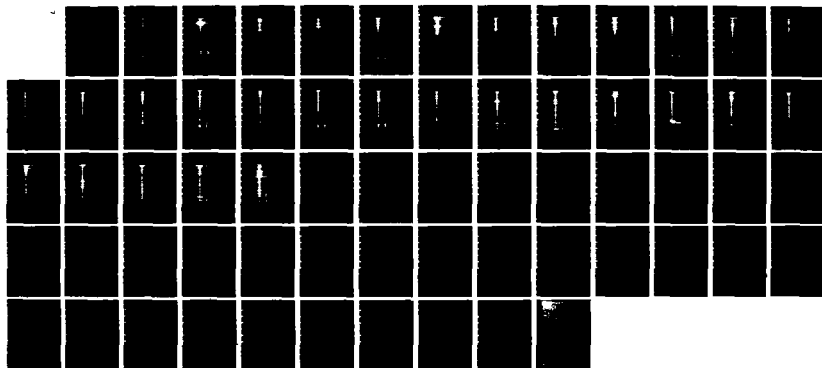
WAZP OBSERVATIONS DURING MILDEX OCTOBER-NOVEMBER 1983
(U) OREGON STATE UNIV CORVALLIS SCHOOL OF OCEANOGRAPHY
M M PARK ET AL. NOV 83 REF-84-8 N00014-79-C-0004

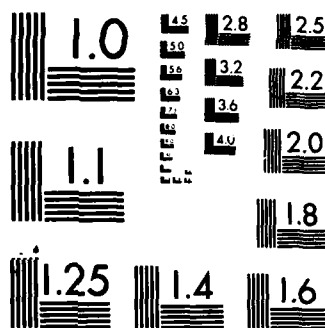
3/3

UNCLASSIFIED

F/G 8/10

NL



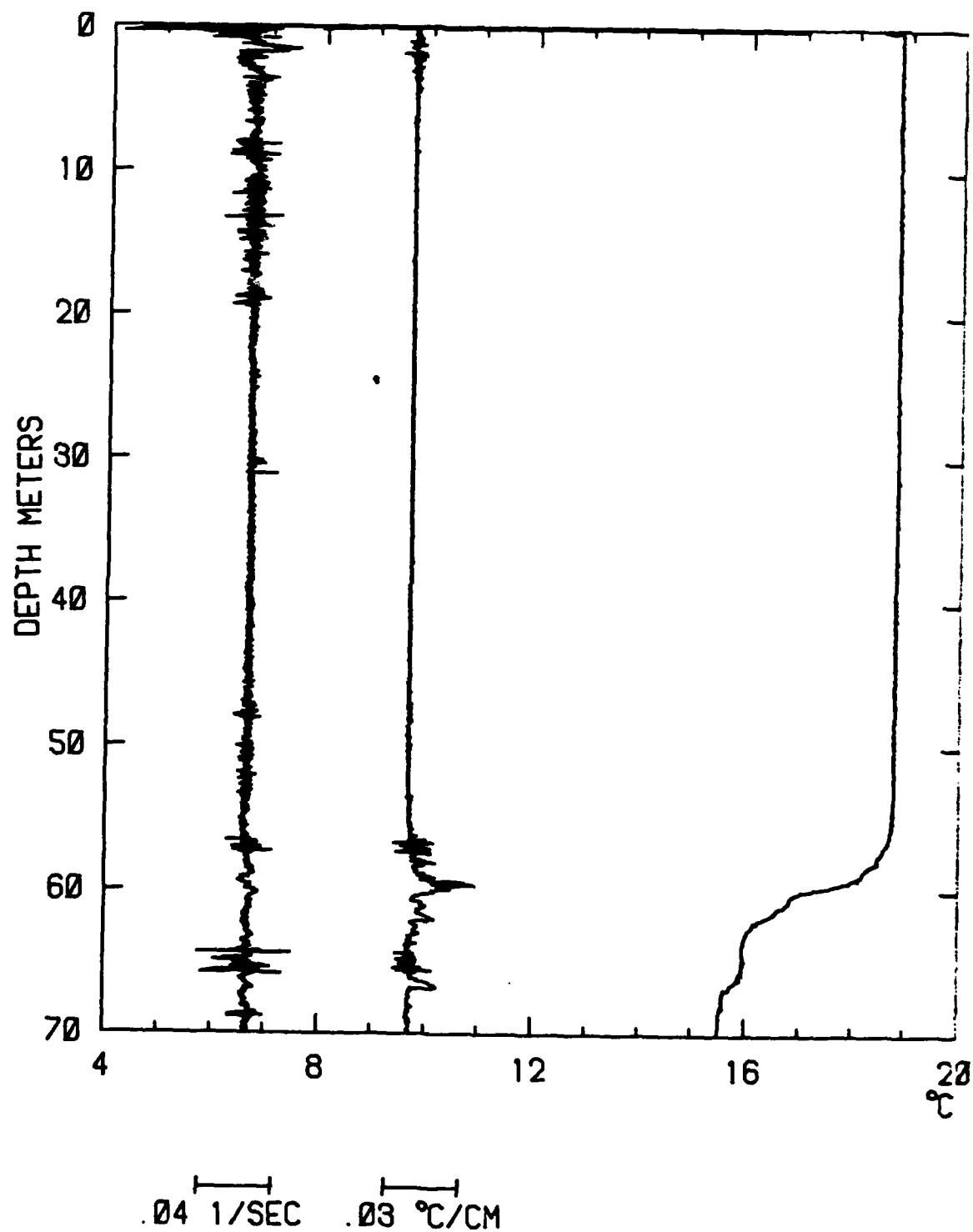


MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

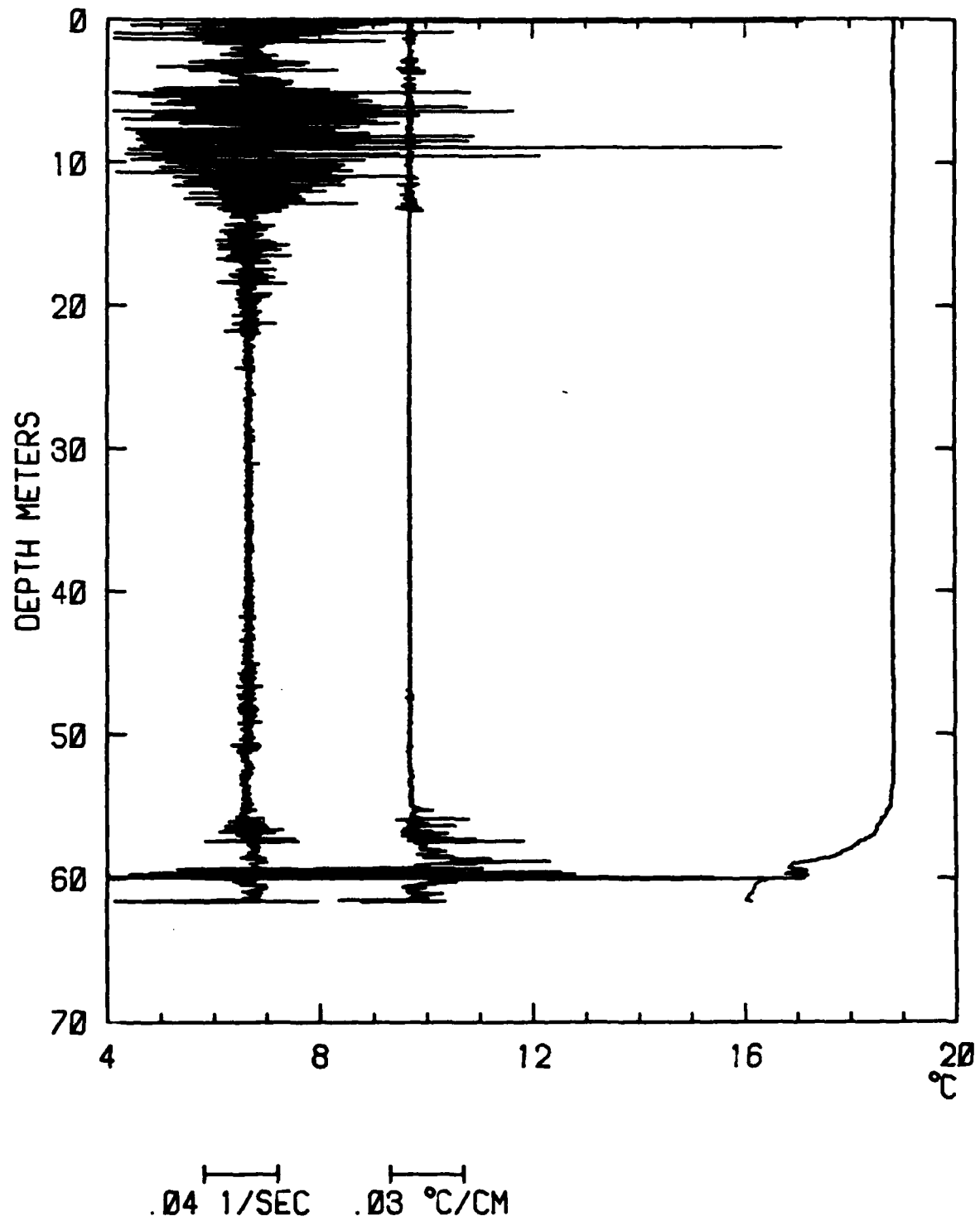
12-NOV-83 18:41

188

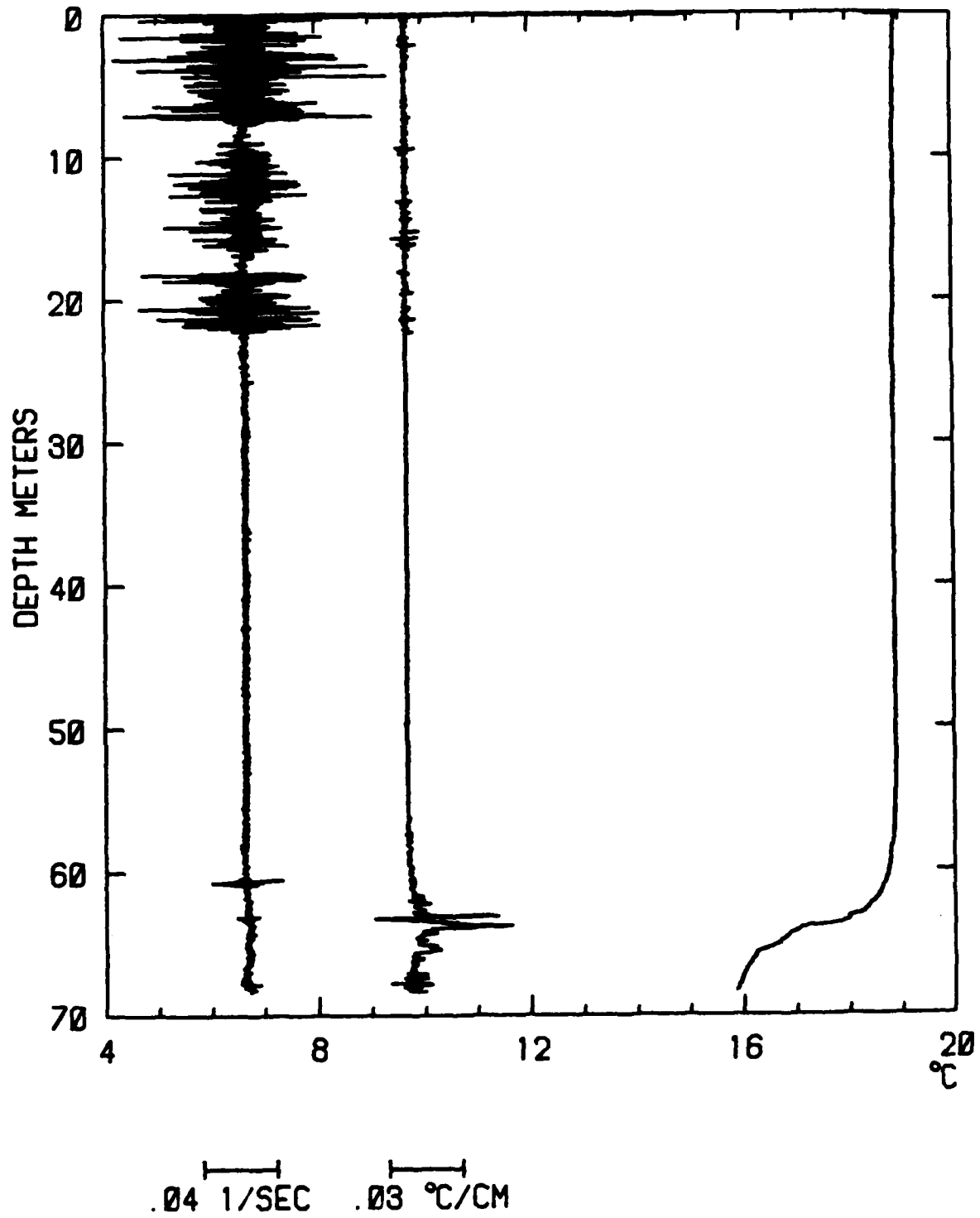
TAPE 67
FILE 11



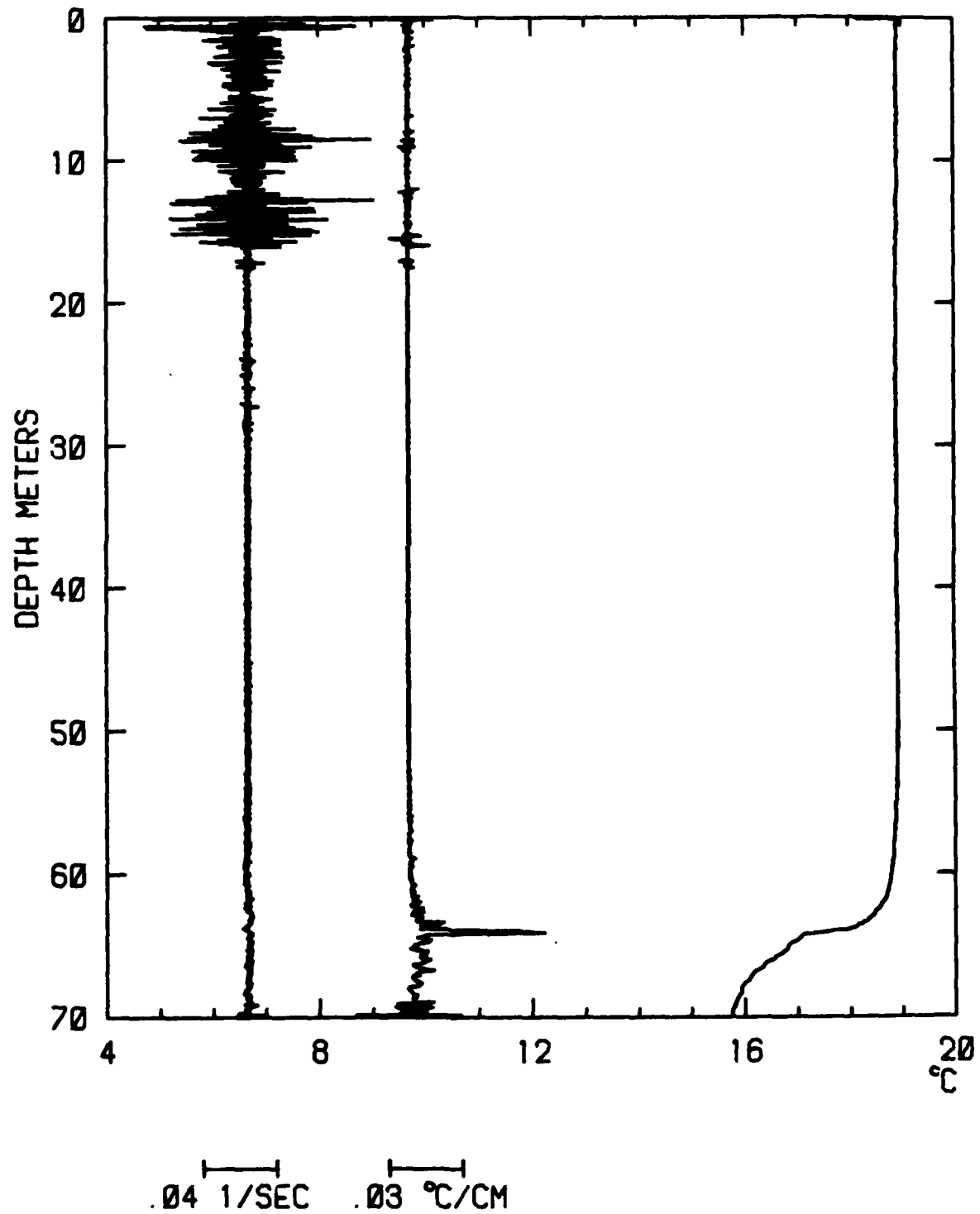
12-NOV-83 18:52

TAPE 67
FILE 12

12-NOV-83 19:34

TAPE 67
FILE 15

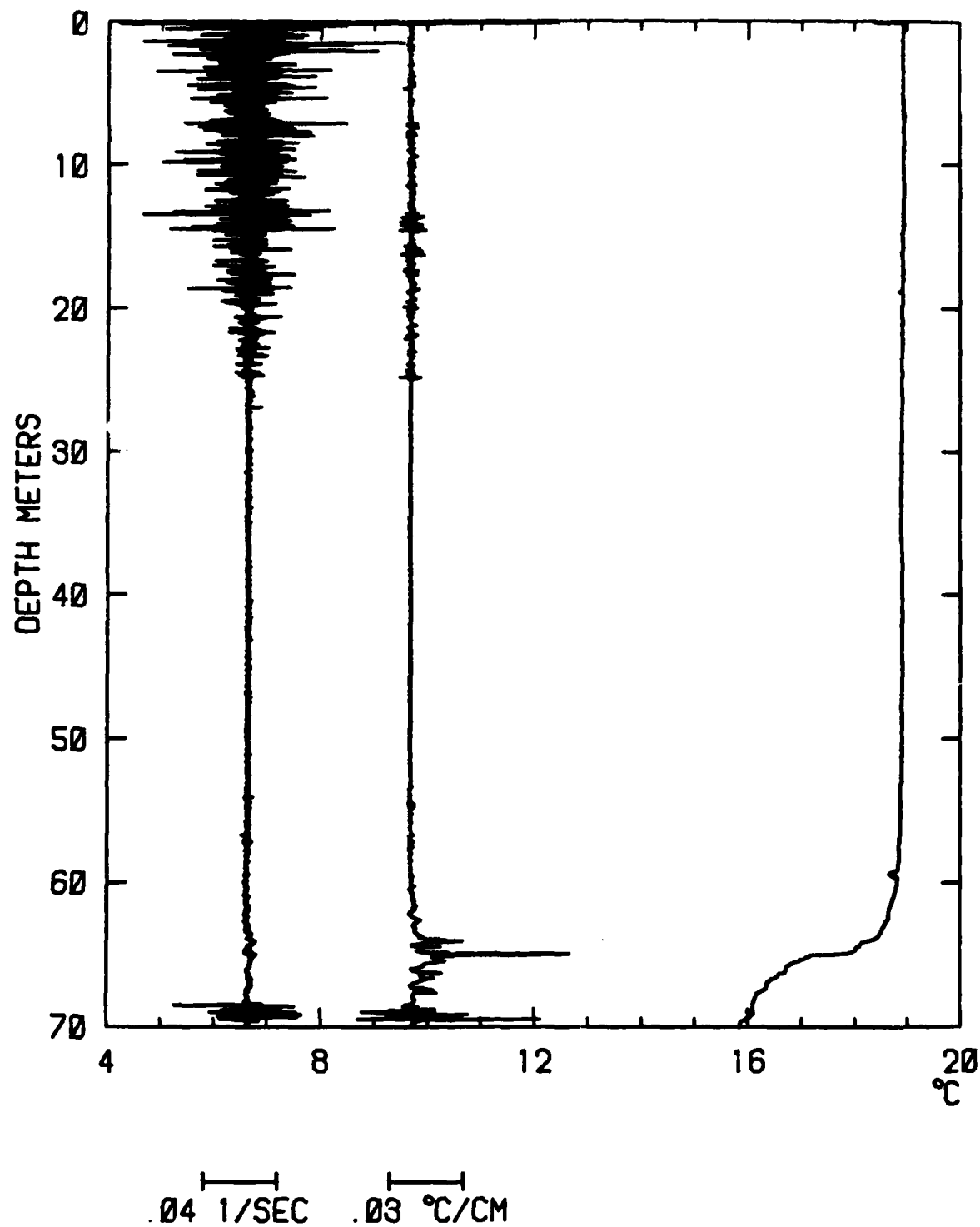
12-NOV-83 19:45

TAPE 67
FILE 16

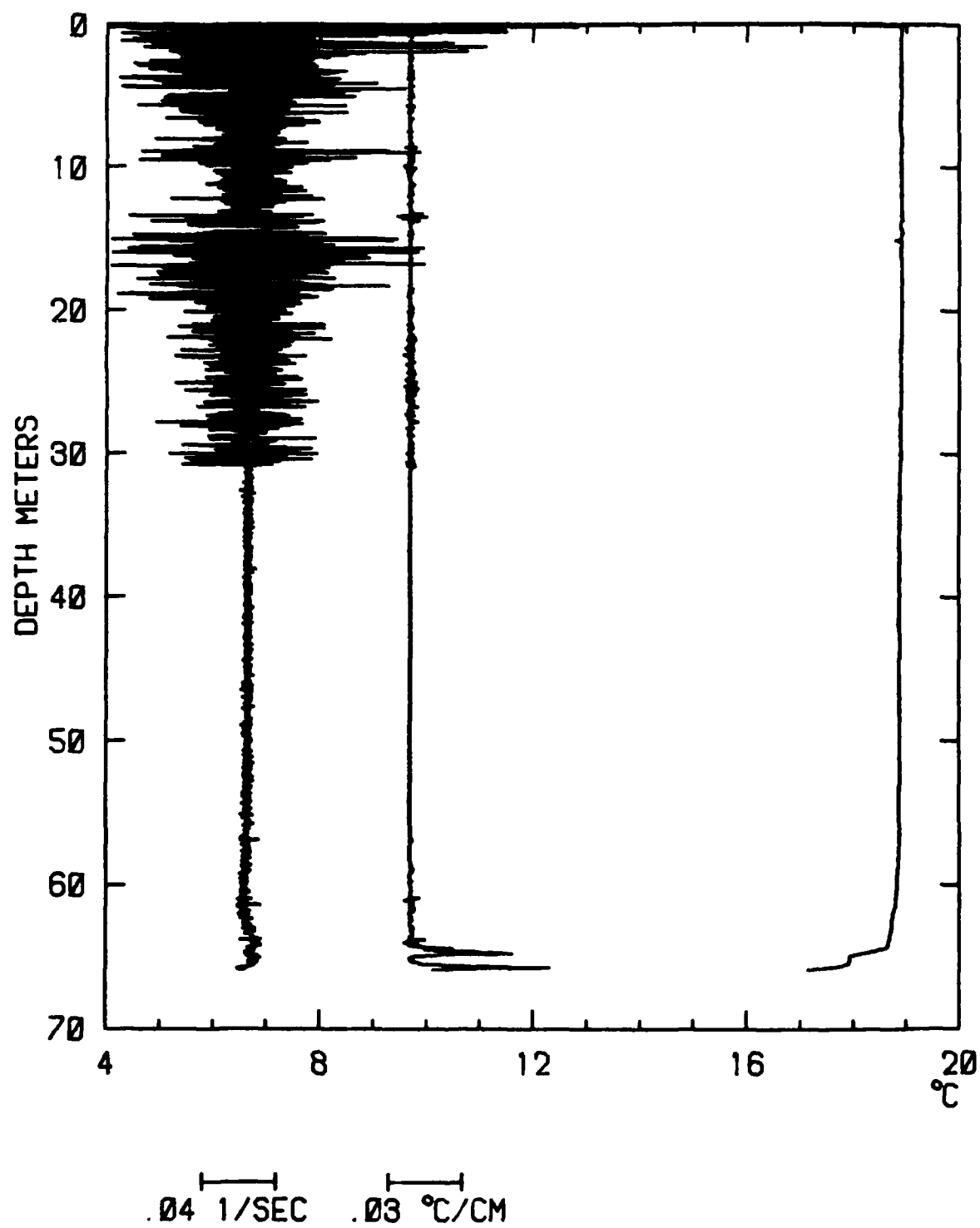
12-NOV-83 19:57

192

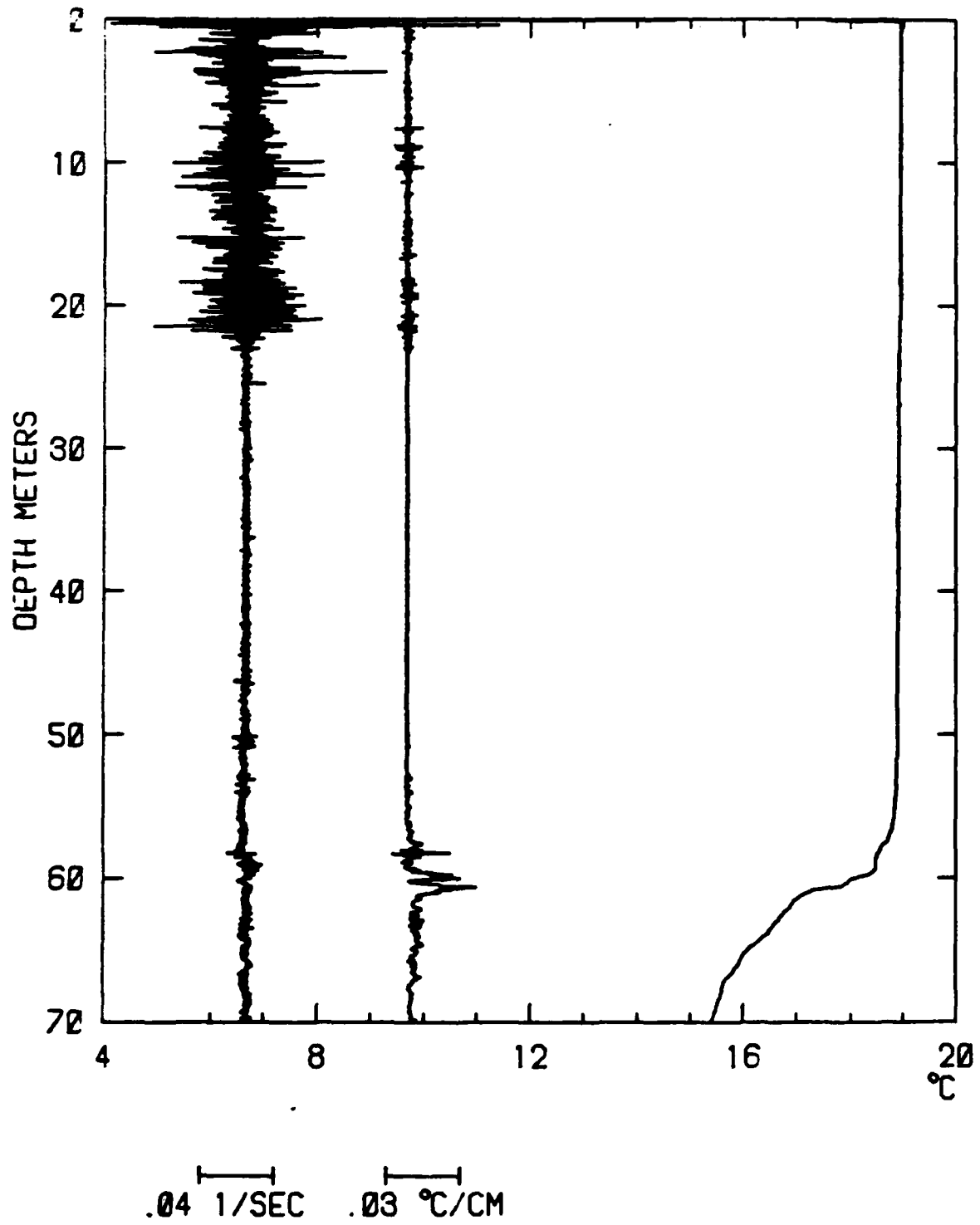
TAPE 67
FILE 17



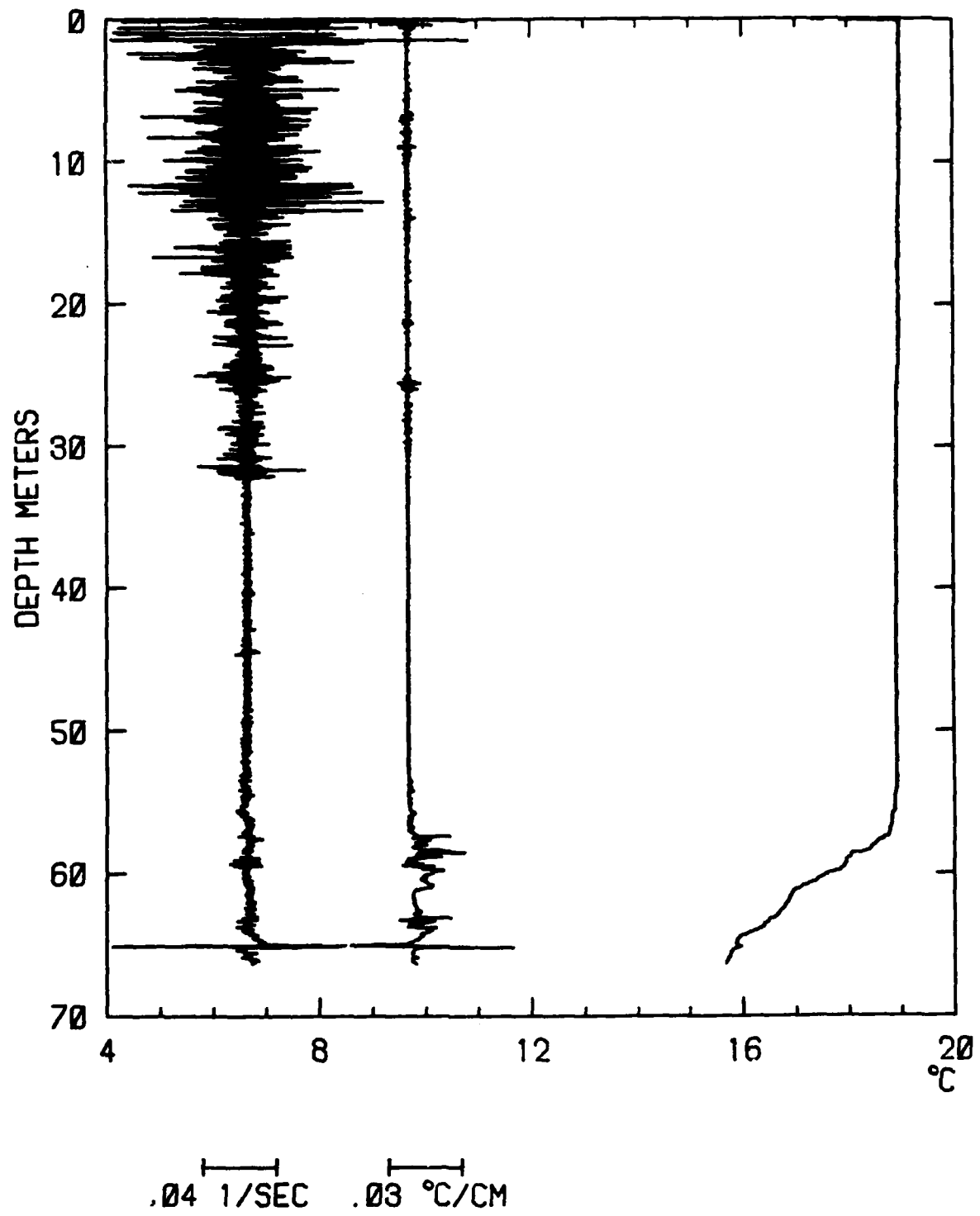
12-NOV-83 16:53

TAPE 68
FILE 1

12-NOV-83 17:10

TAPE 68
FILE 3

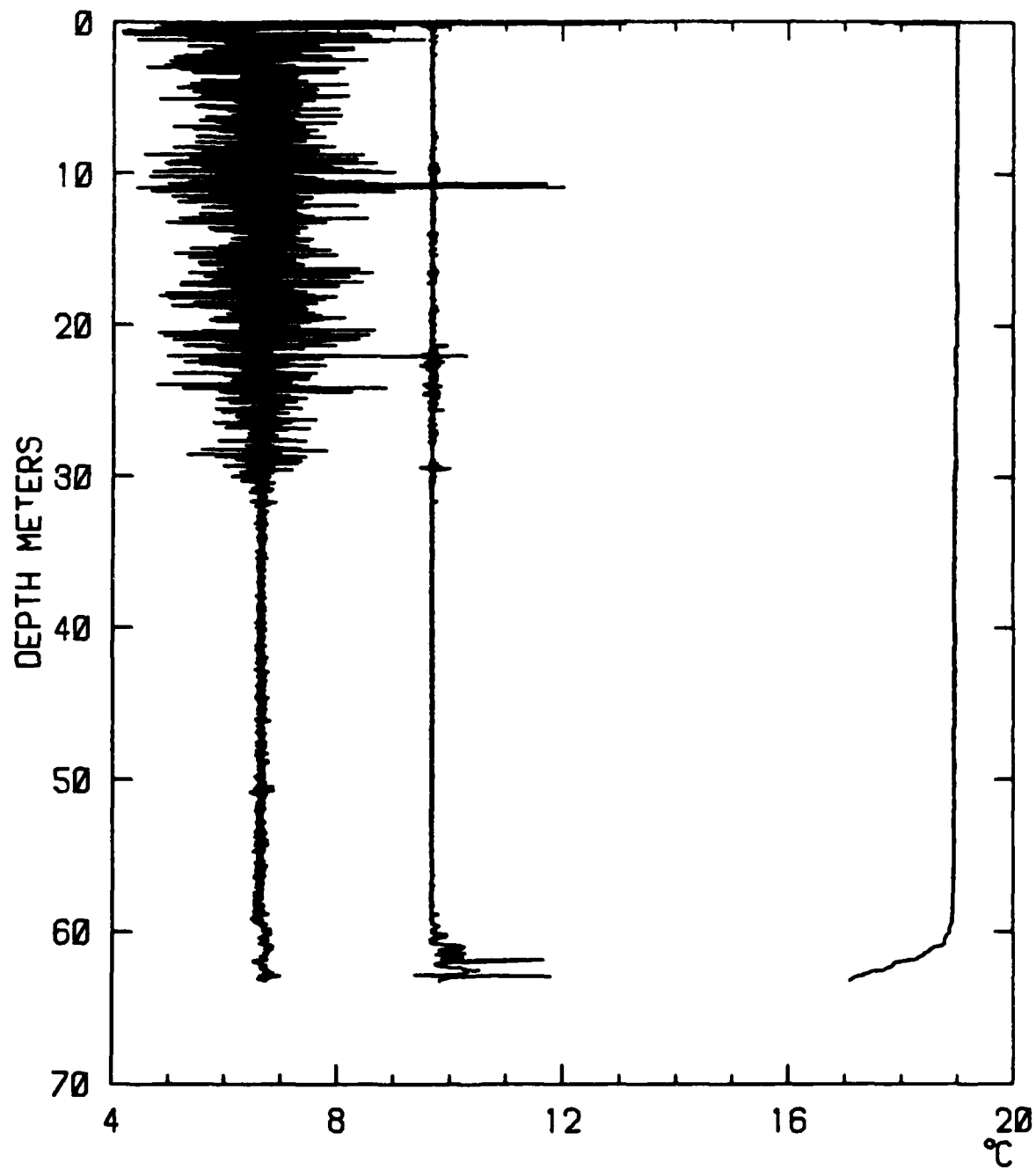
12-NOV-83 17:19

TAPE 68
FILE 4

12-NOV-83 17:29

196

TAPE 68
FILE 5

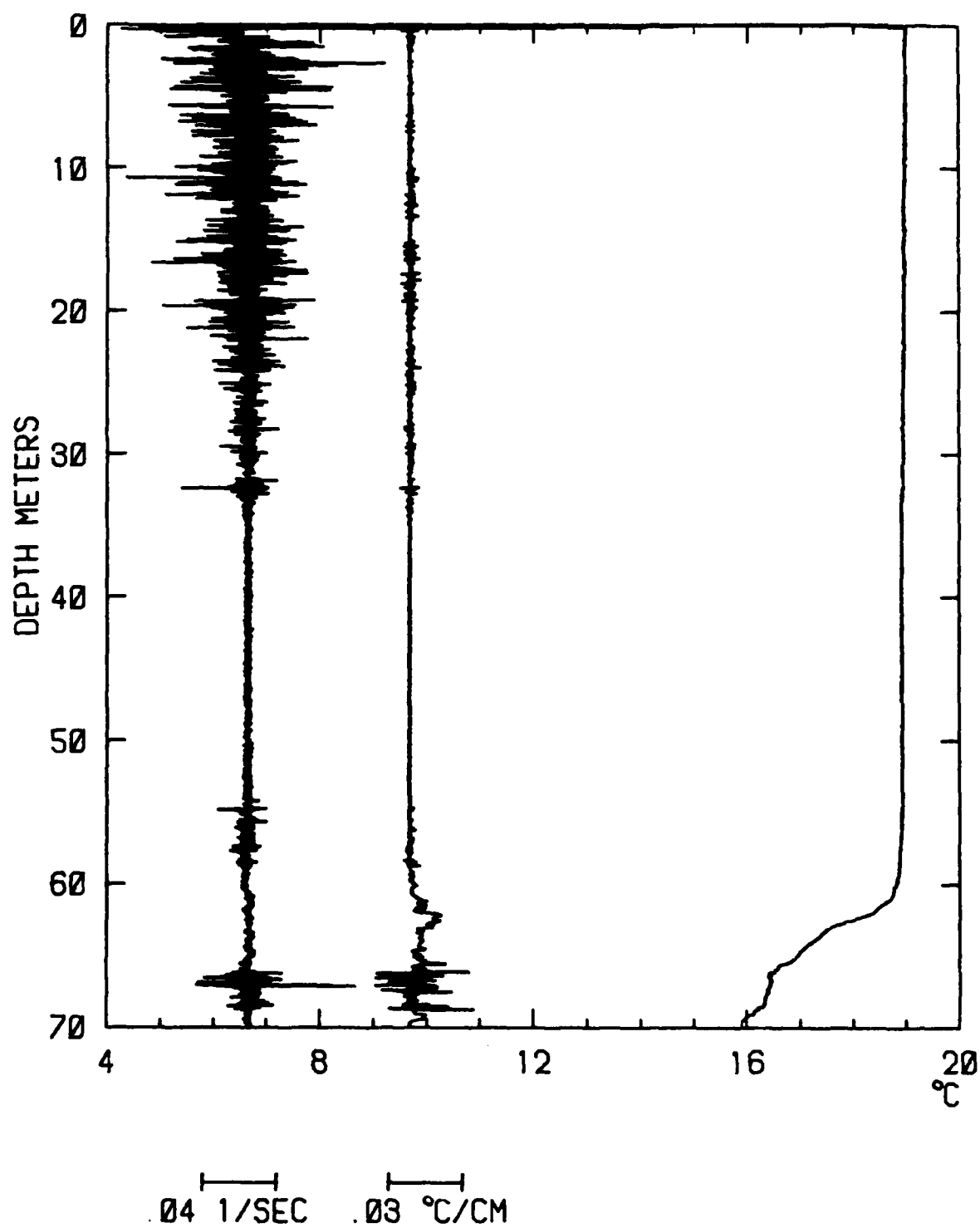


.04 1/SEC .03 °C/CM

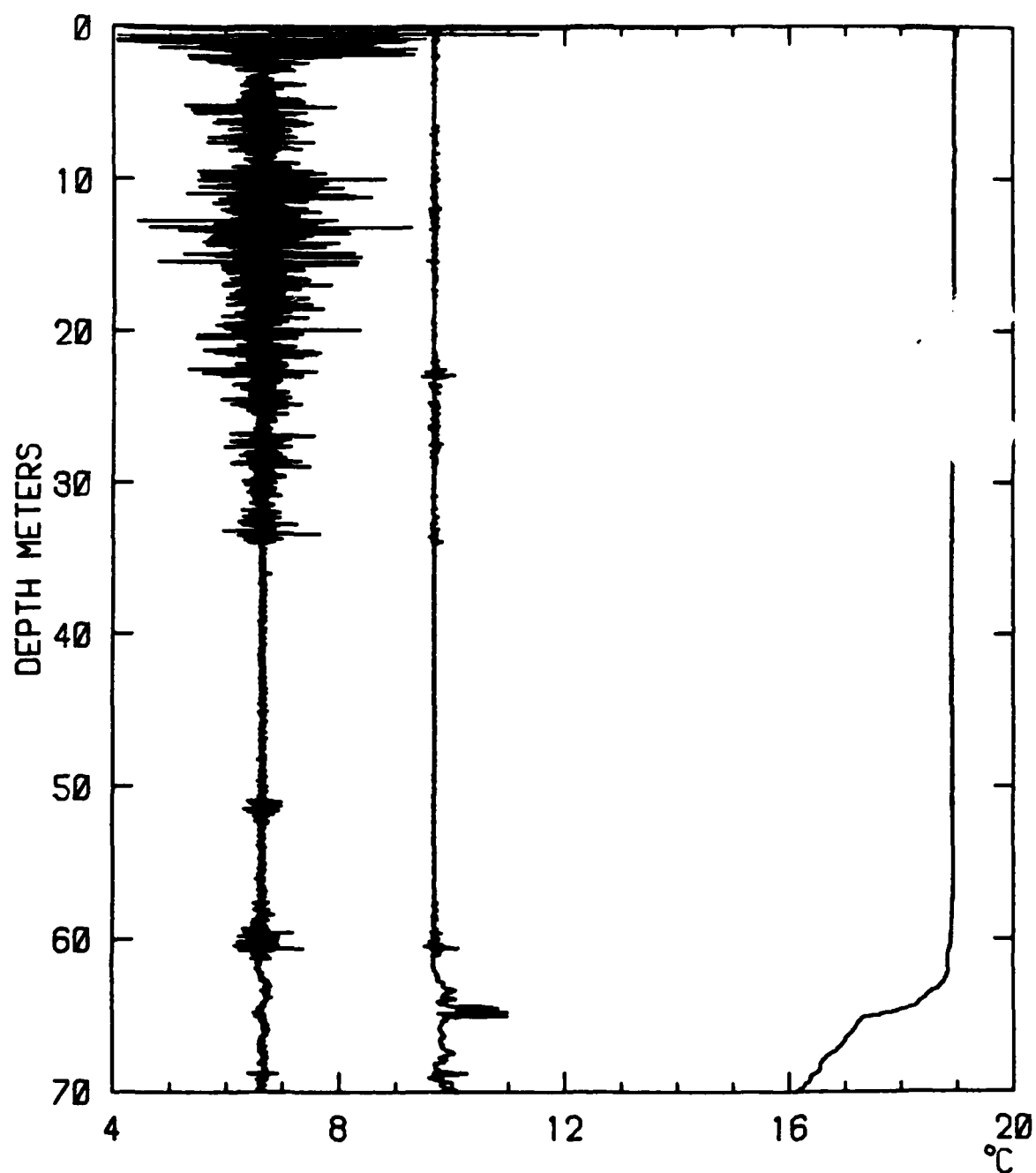
12-NOV-83 17:01

197

TAPE 68
FILE 7

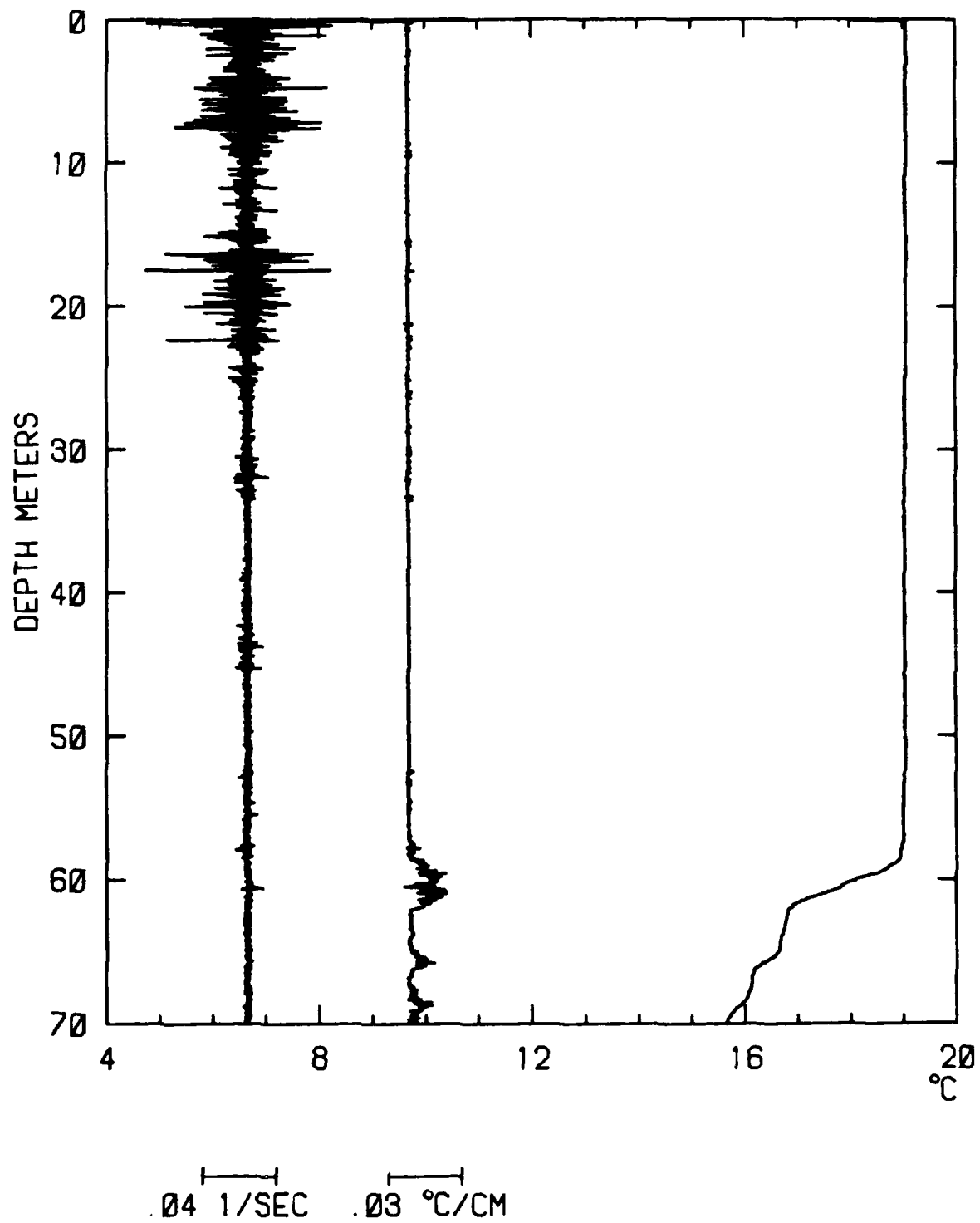


12-NOV-83 17:55

TAPE 68
FILE 8

.04 1/SEC .03 °C/CM

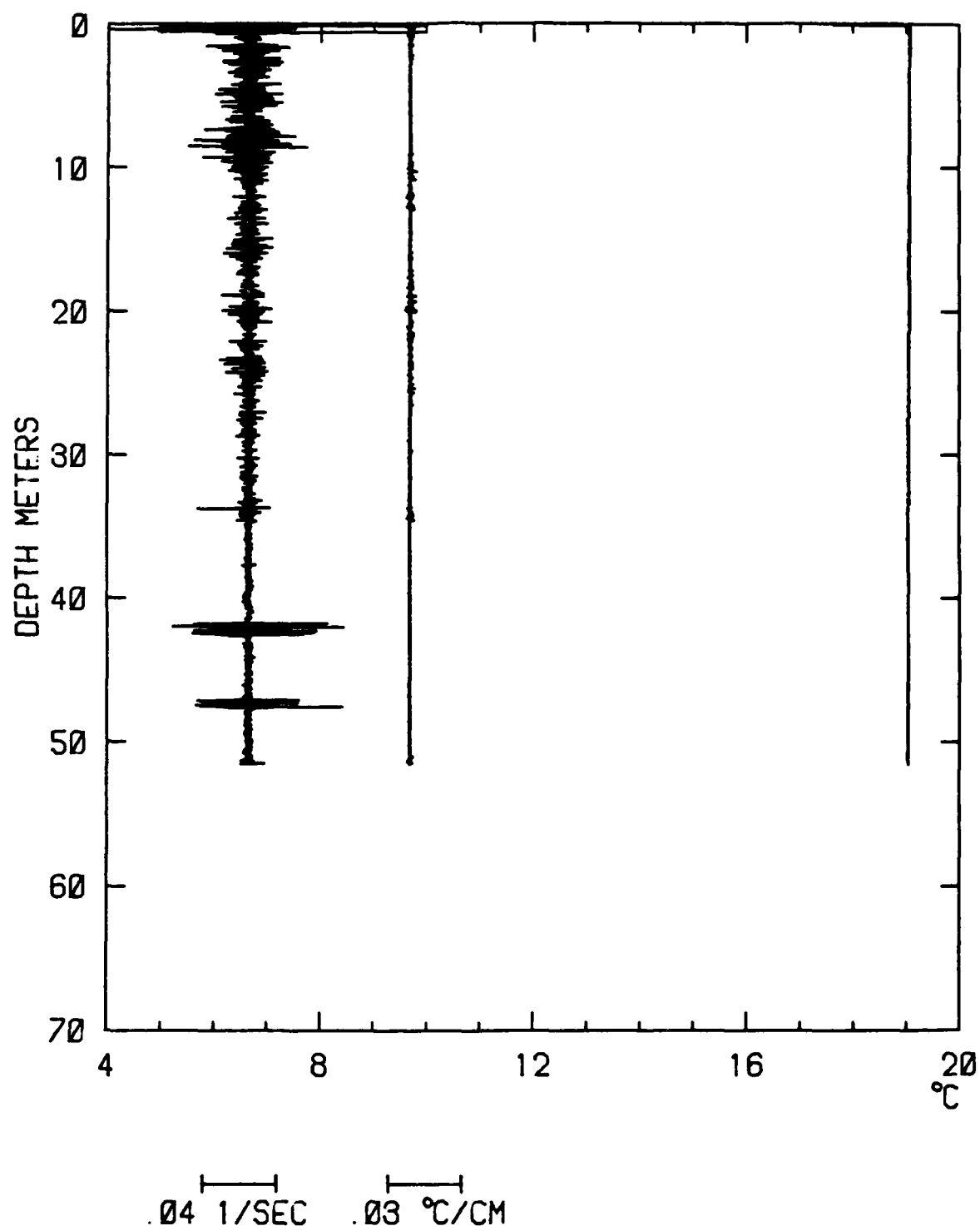
12-NOV-83 18:05

TAPE 68
FILE 9

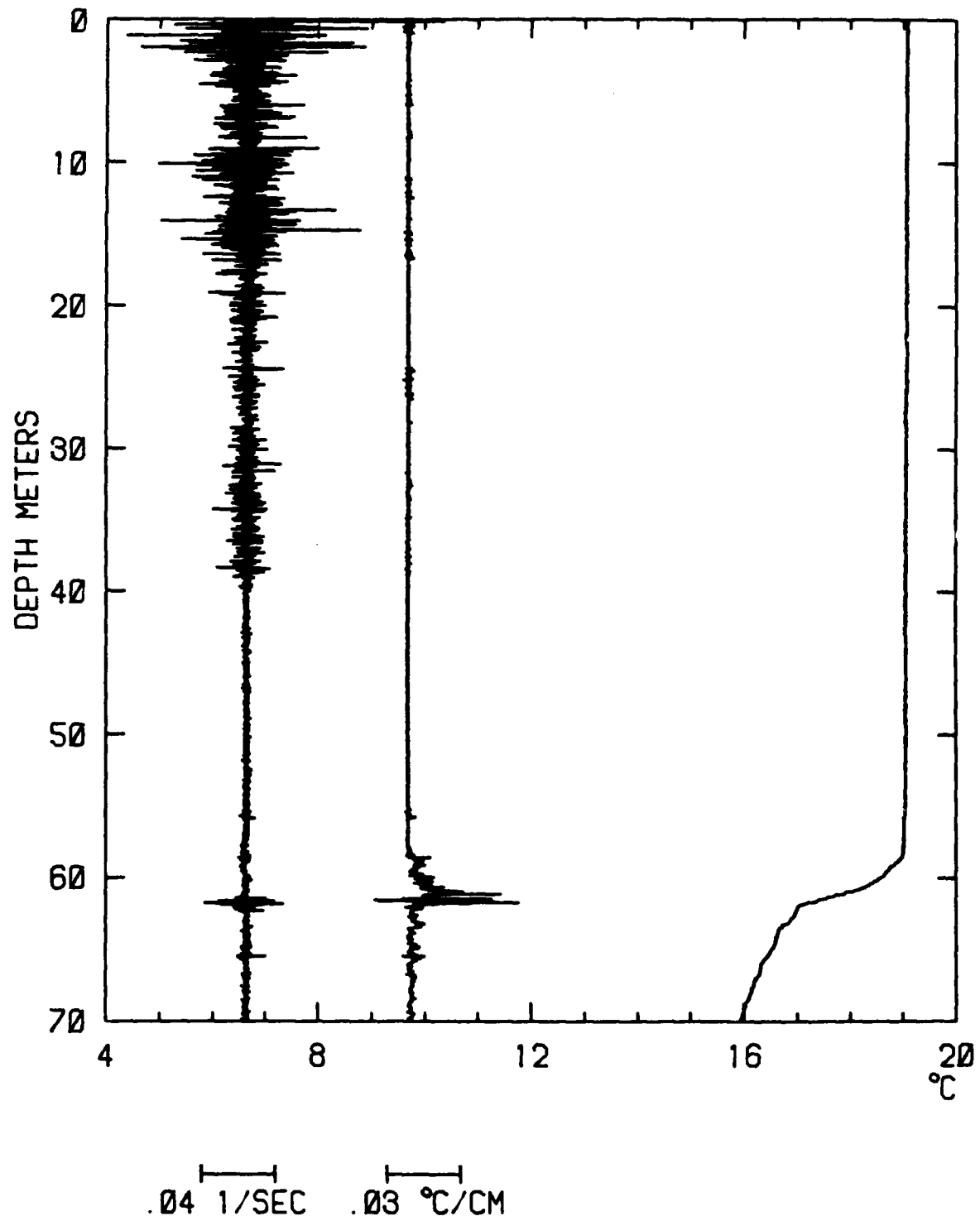
12-NOV-83 18:14

TAPE 68

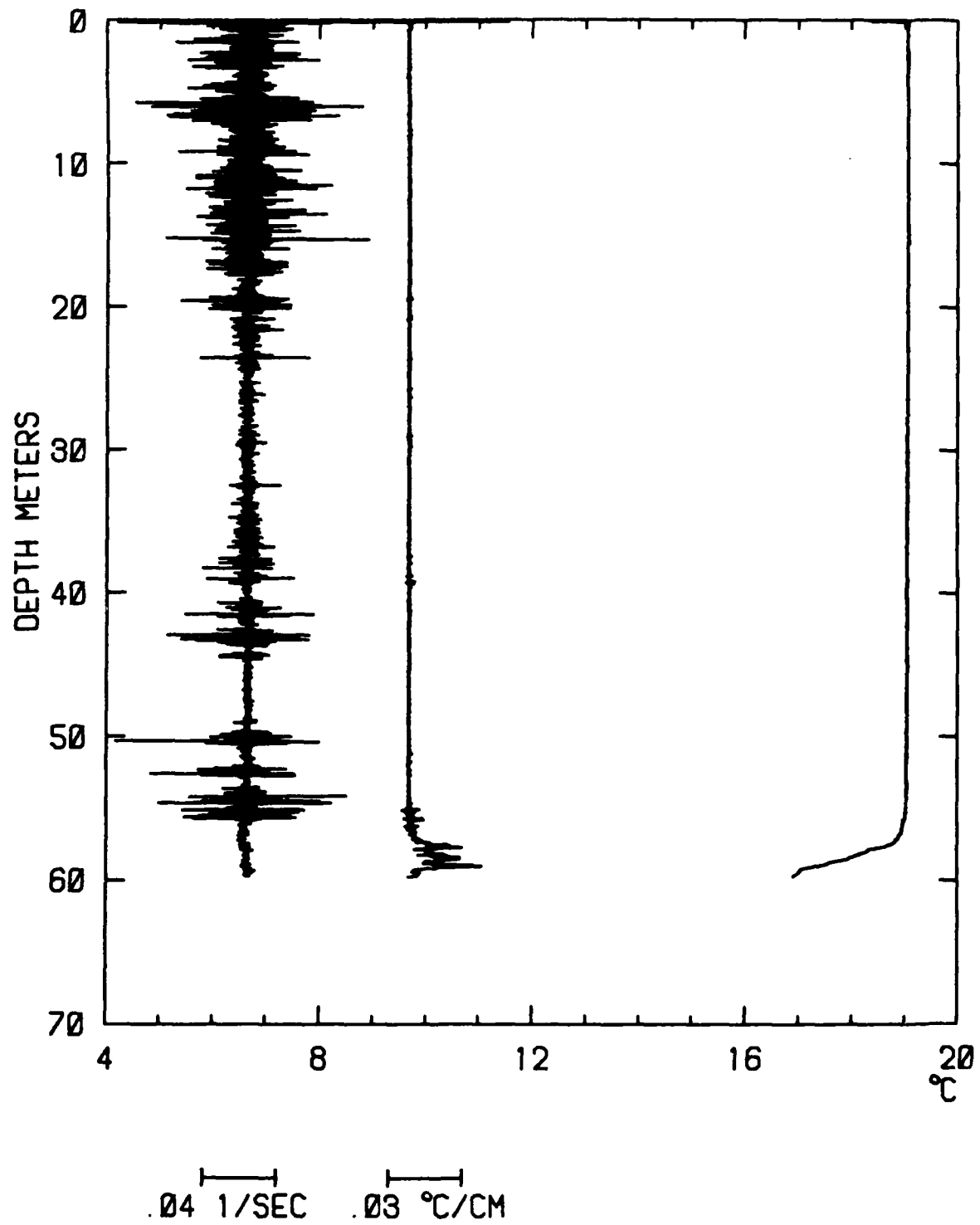
FILE 10



12-NOV-83 18:41

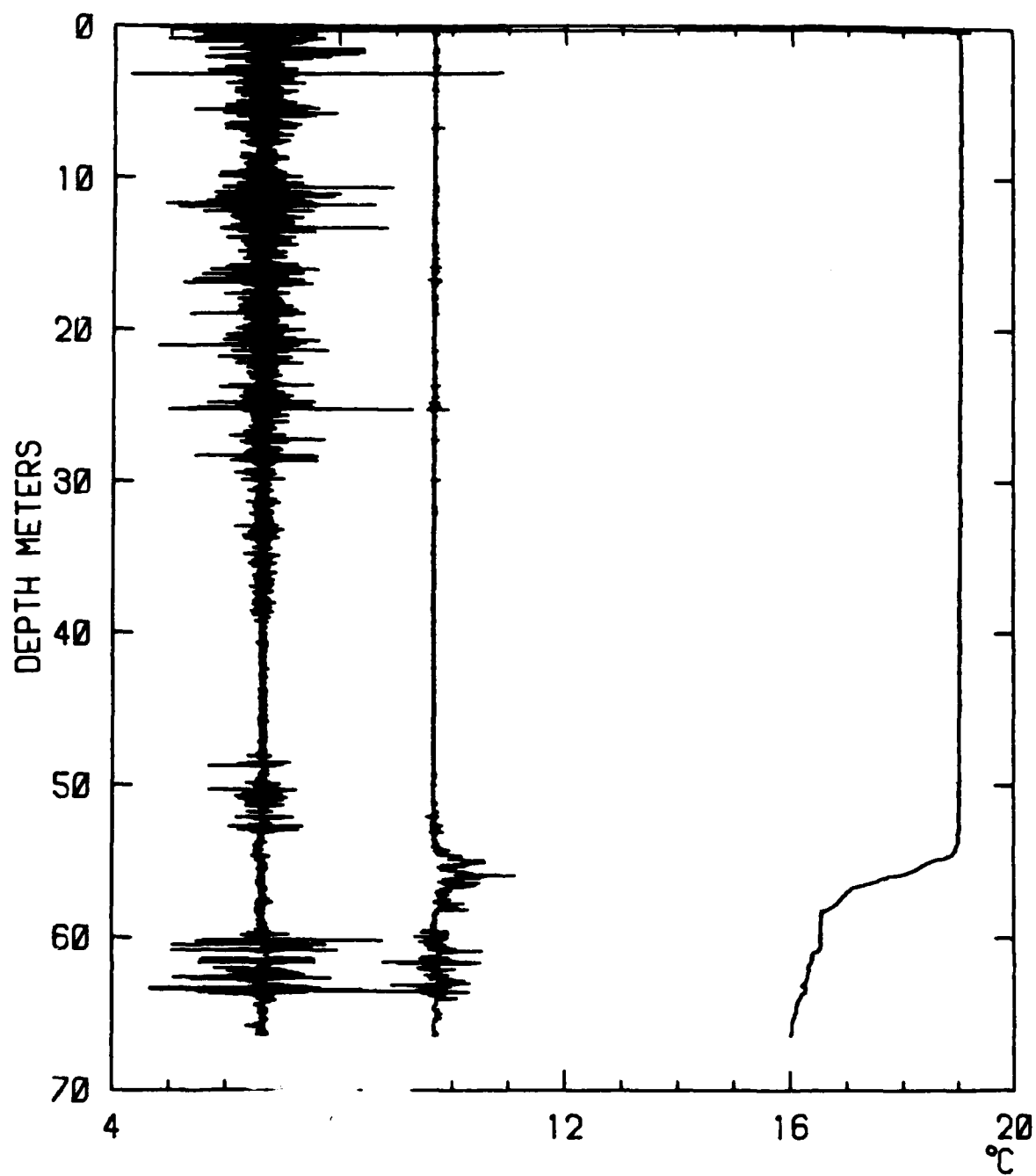
TAPE 68
FILE 11

12-NOV-83 18:52

TAPE 68
FILE 12

12-NOV-83 18:59 ²⁰³

TAPE 68
FILE 13

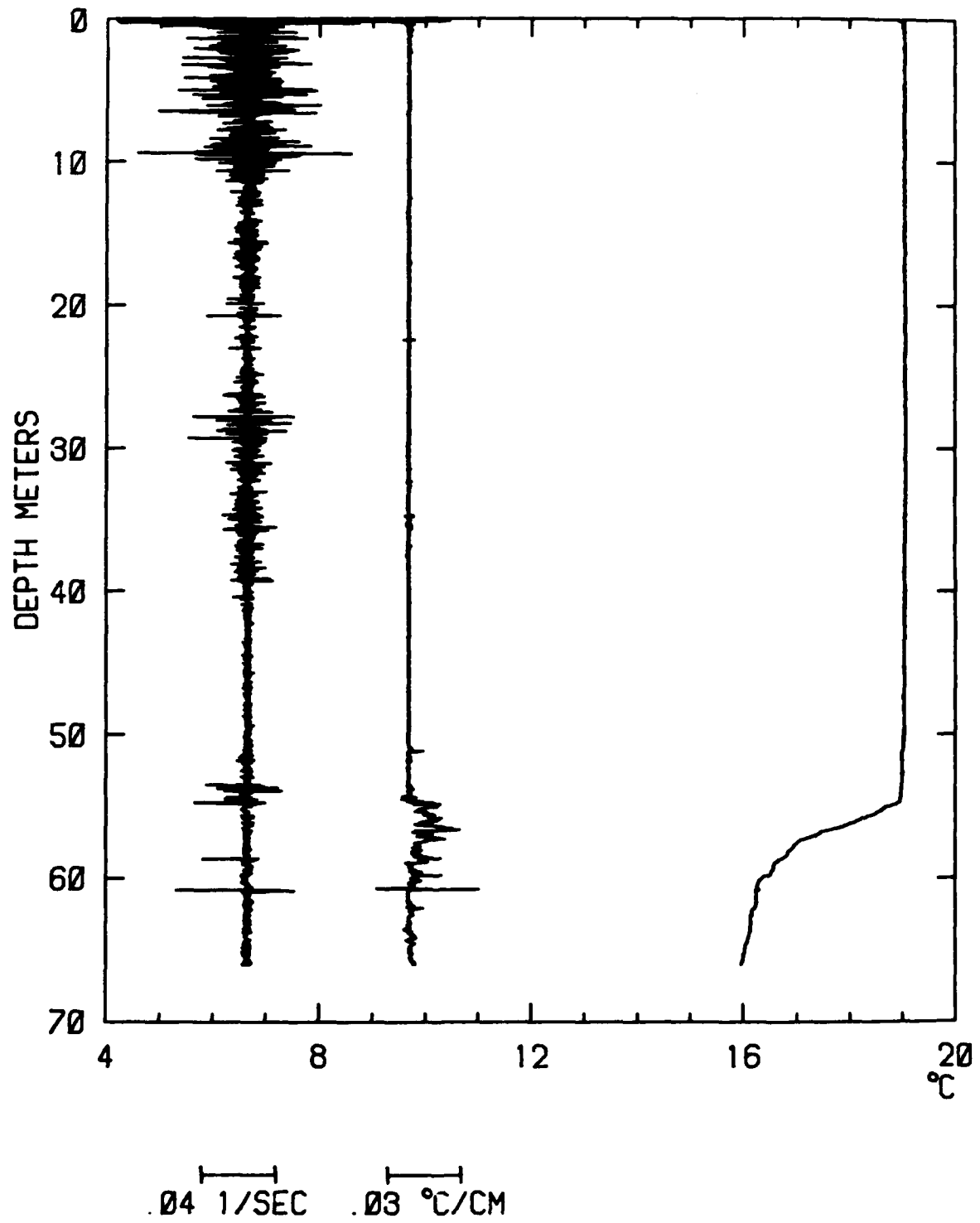


04 1/SEC 03 °C/CM

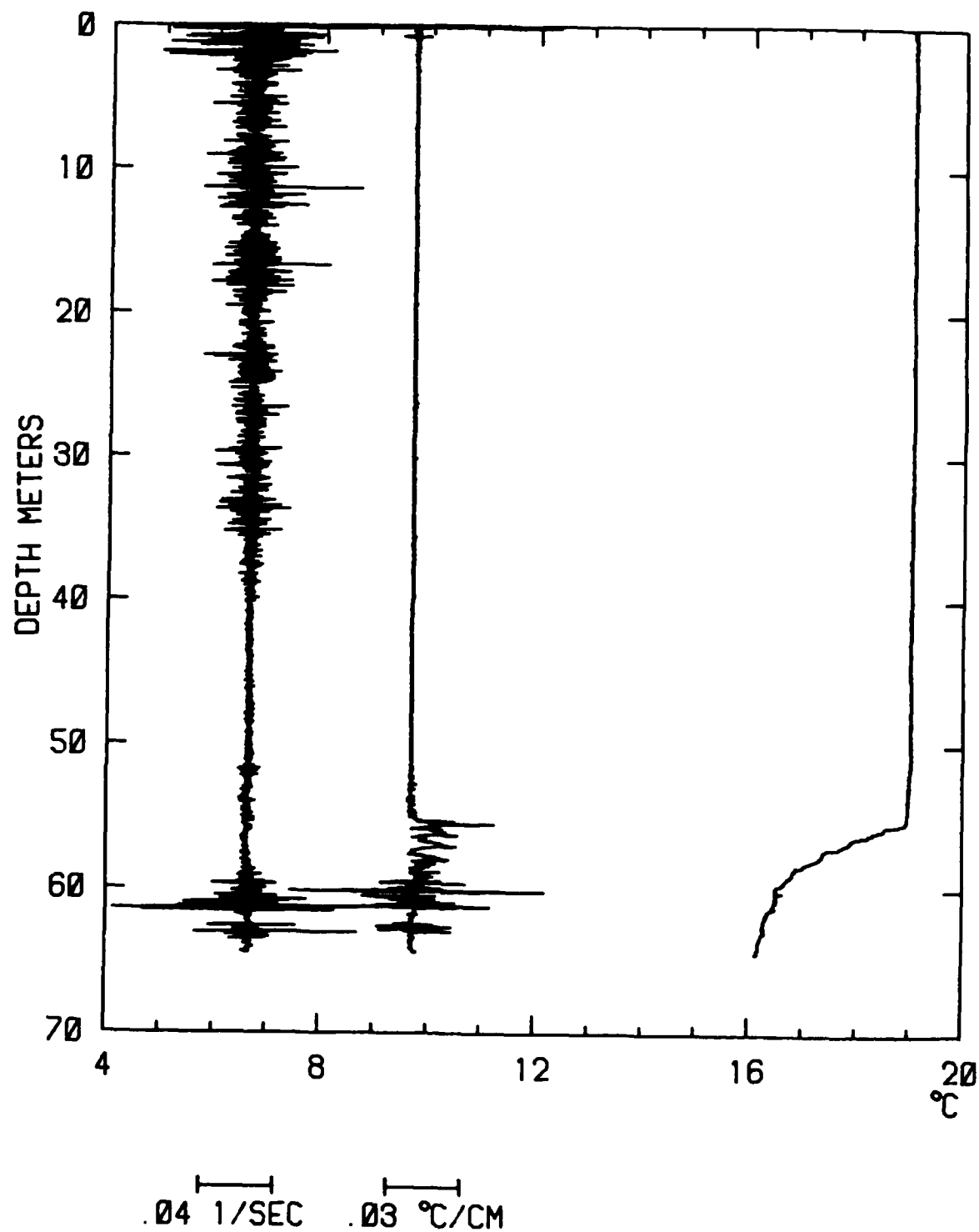
12-NOV-83 19:07

TAPE 68

FILE 14



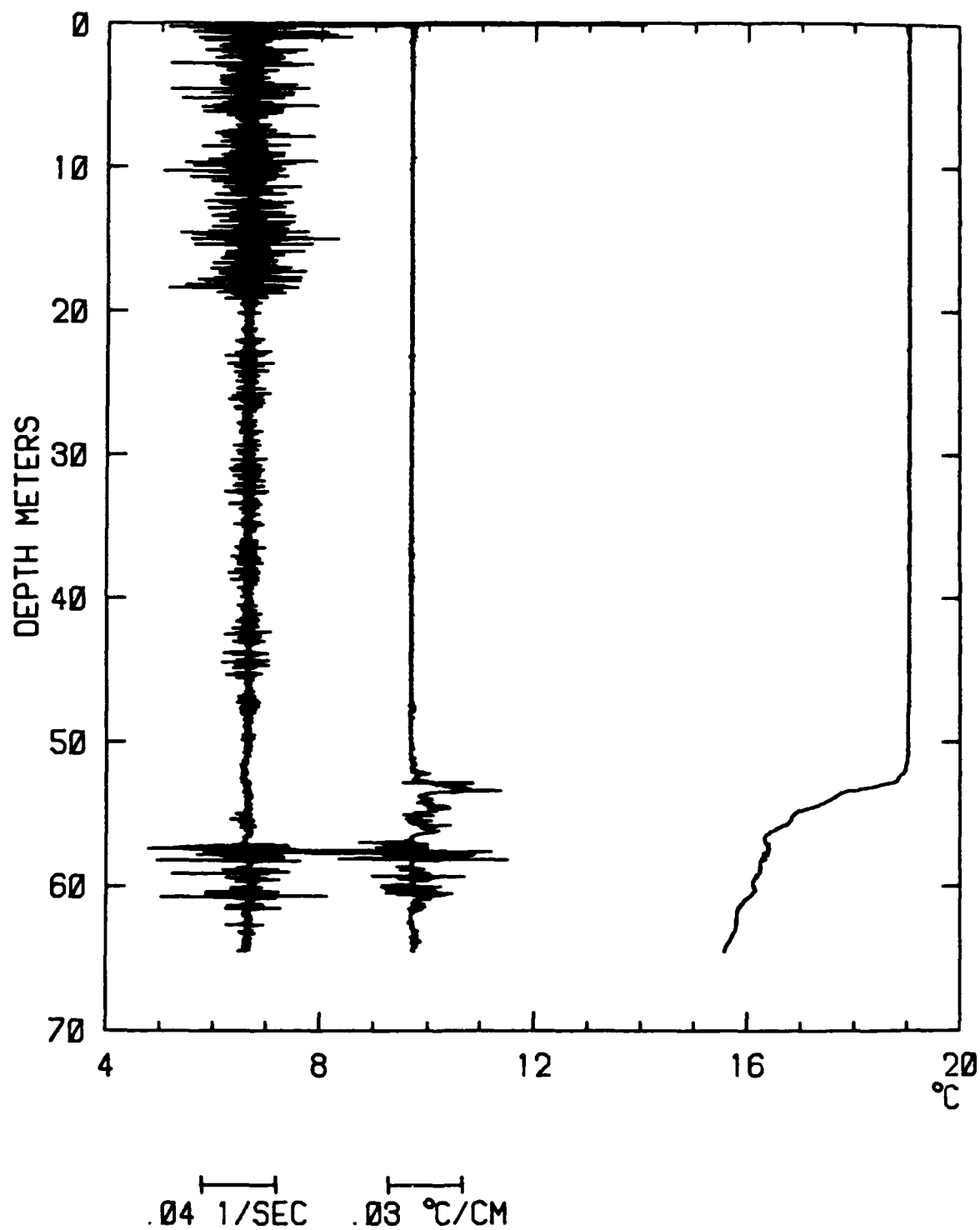
12-NOV-83 19:34

TAPE 68
FILE 15

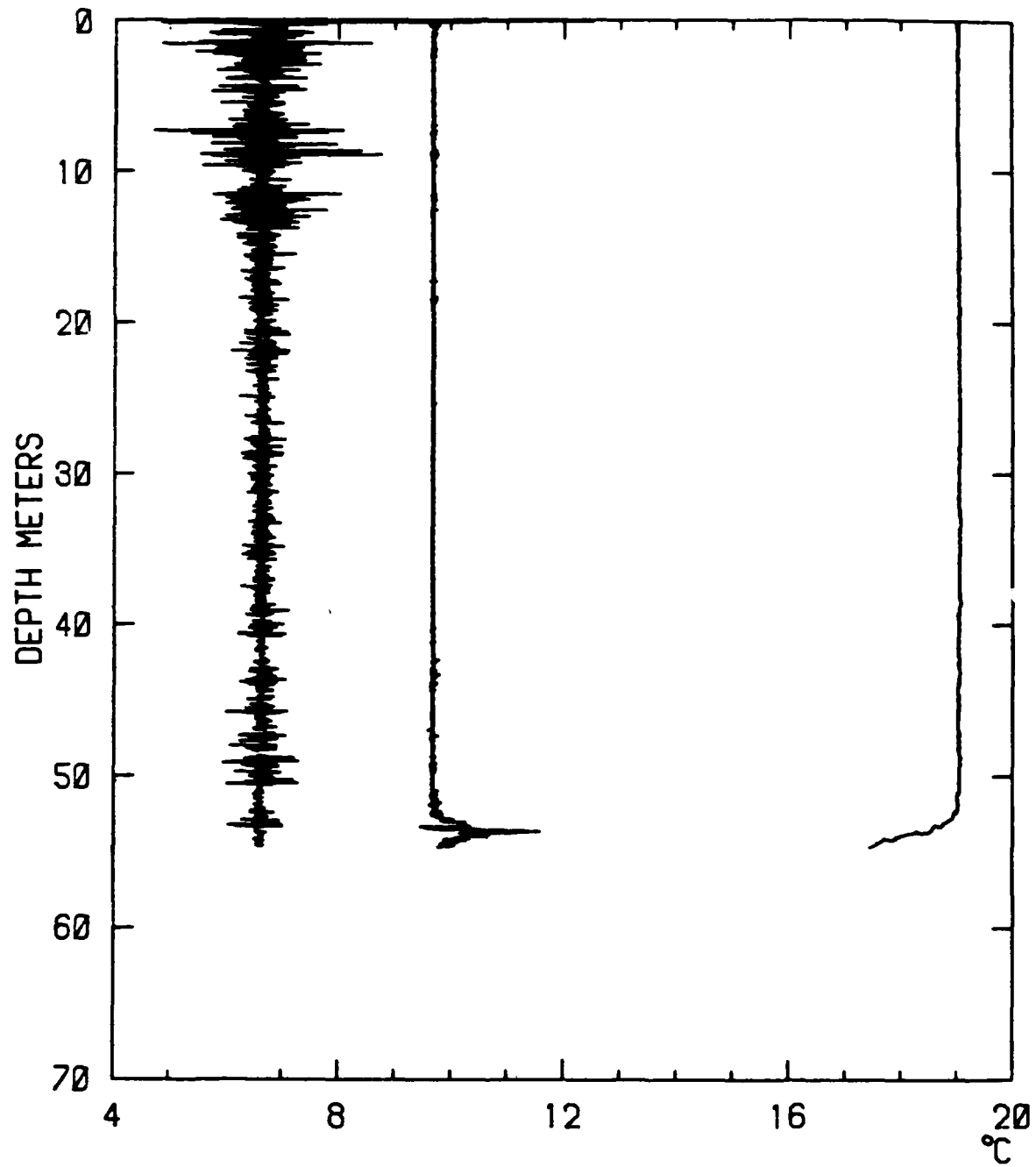
12-NOV-83 19:57

216

TAPE 68
FILE 17



12-NOV-83 19:45

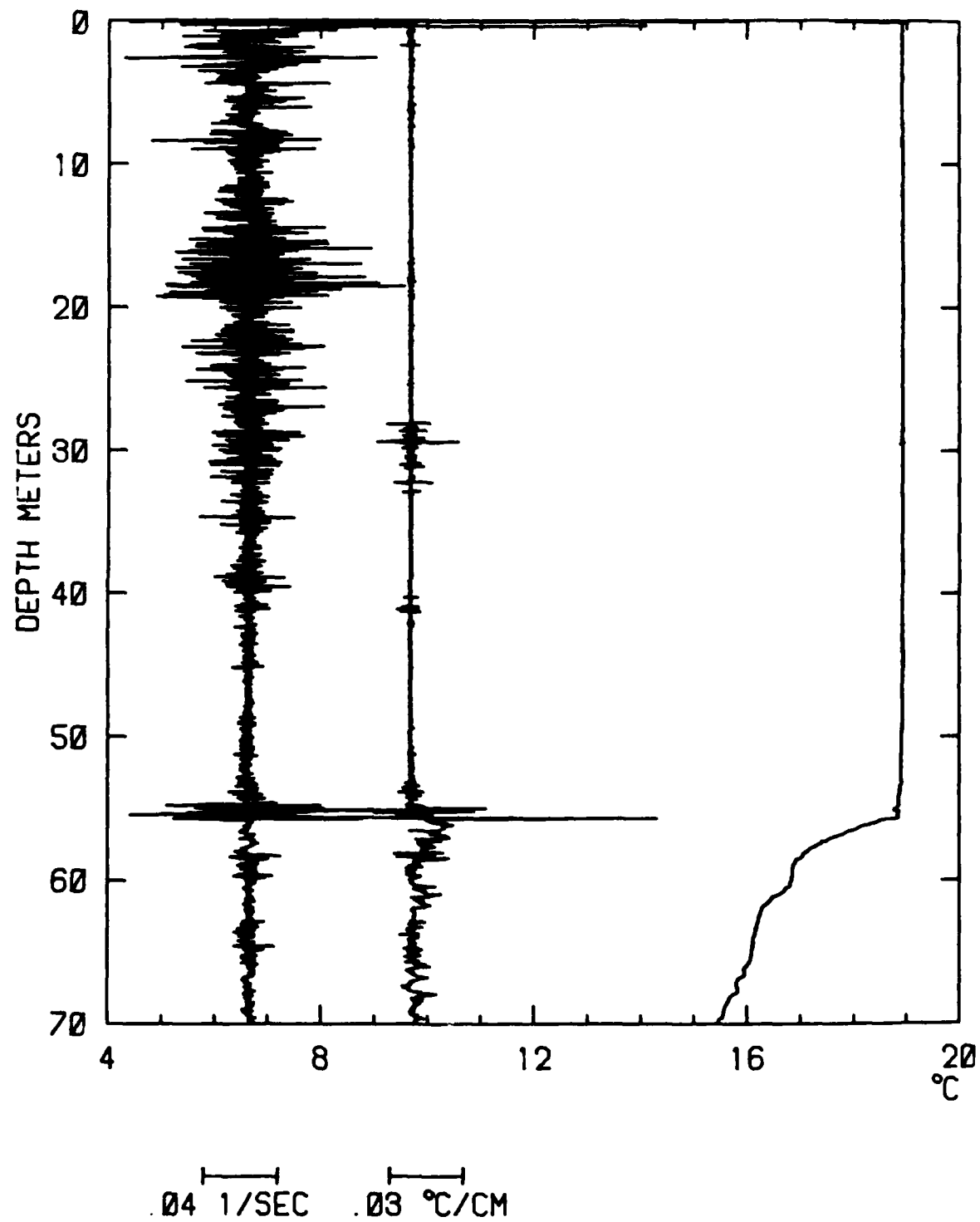
TAPE 68
FILE 18

.04 1/SEC .03 °C/CM

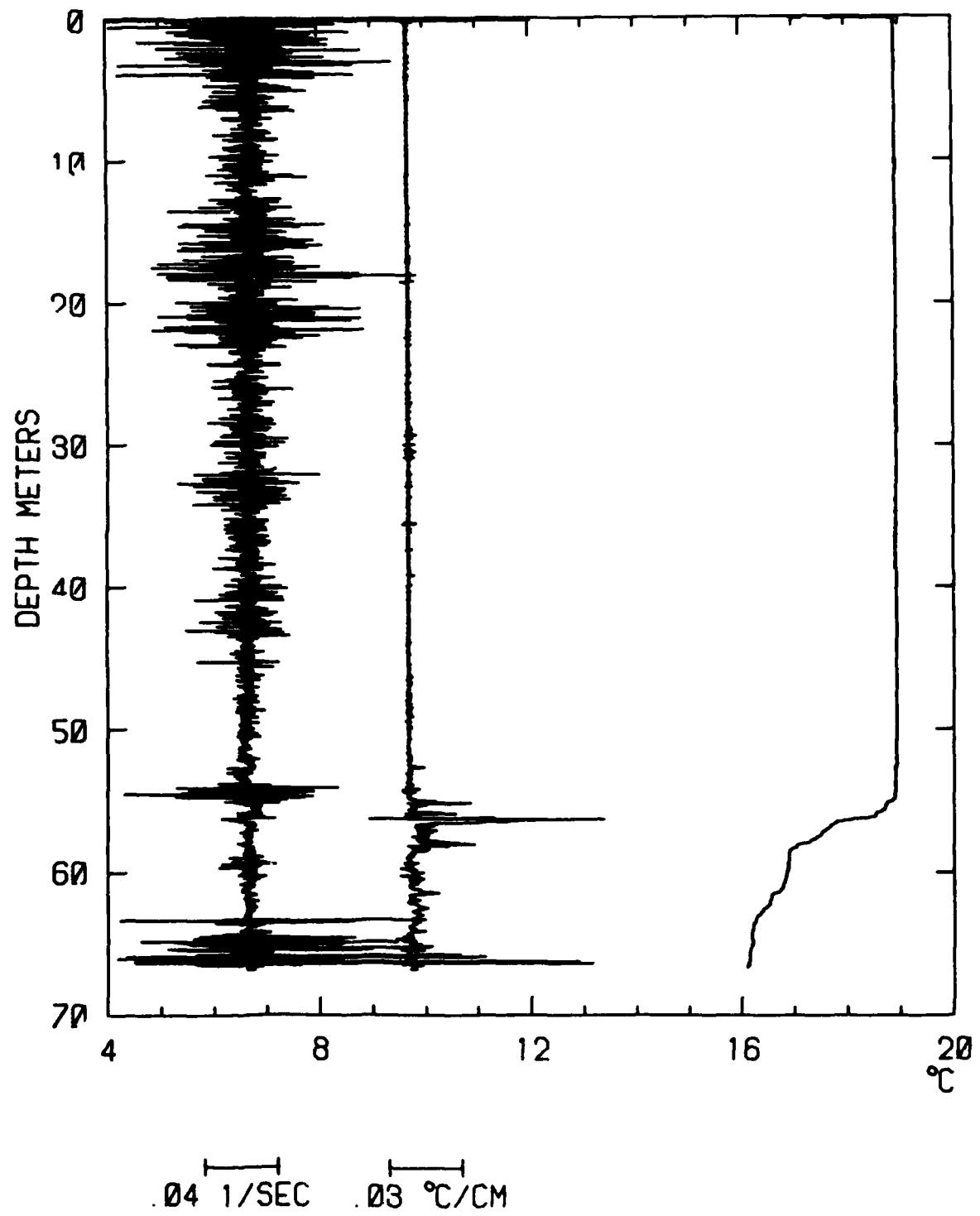
13-NOV-83 00:05

208

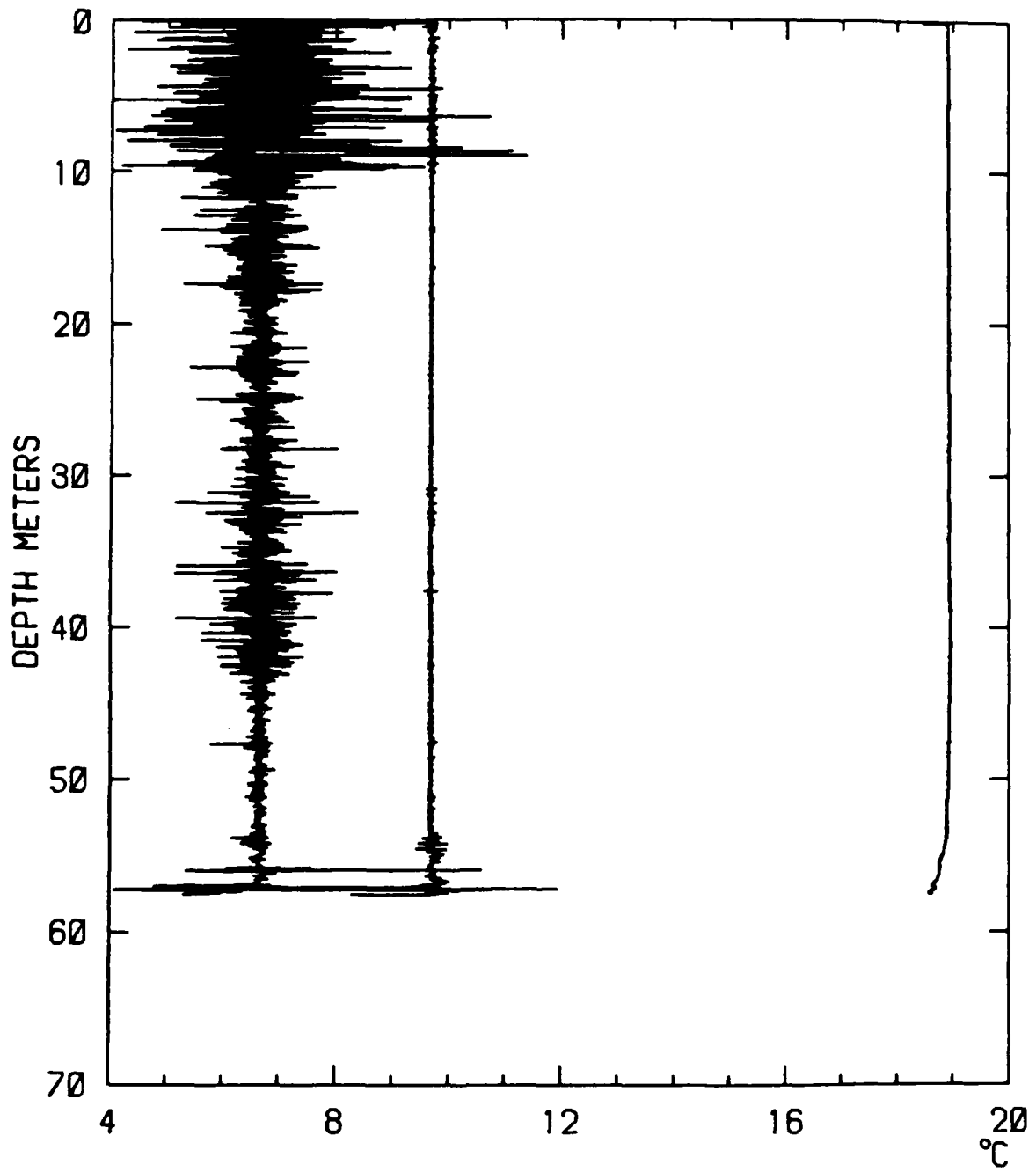
TAPE 69
FILE 1



13-NOV-83 00:13

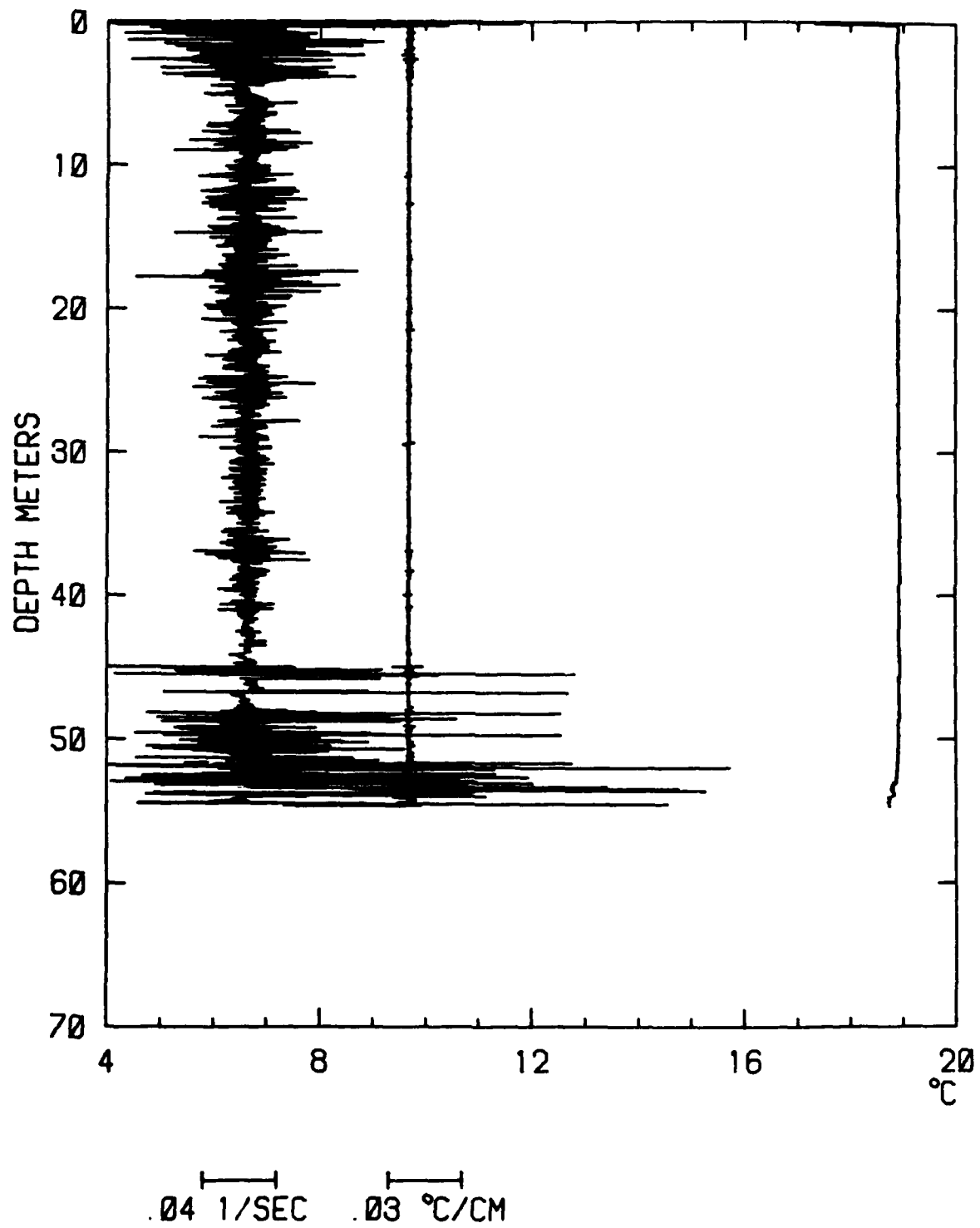
TAPE 69
FILE 3

13-NOV-83 00:23

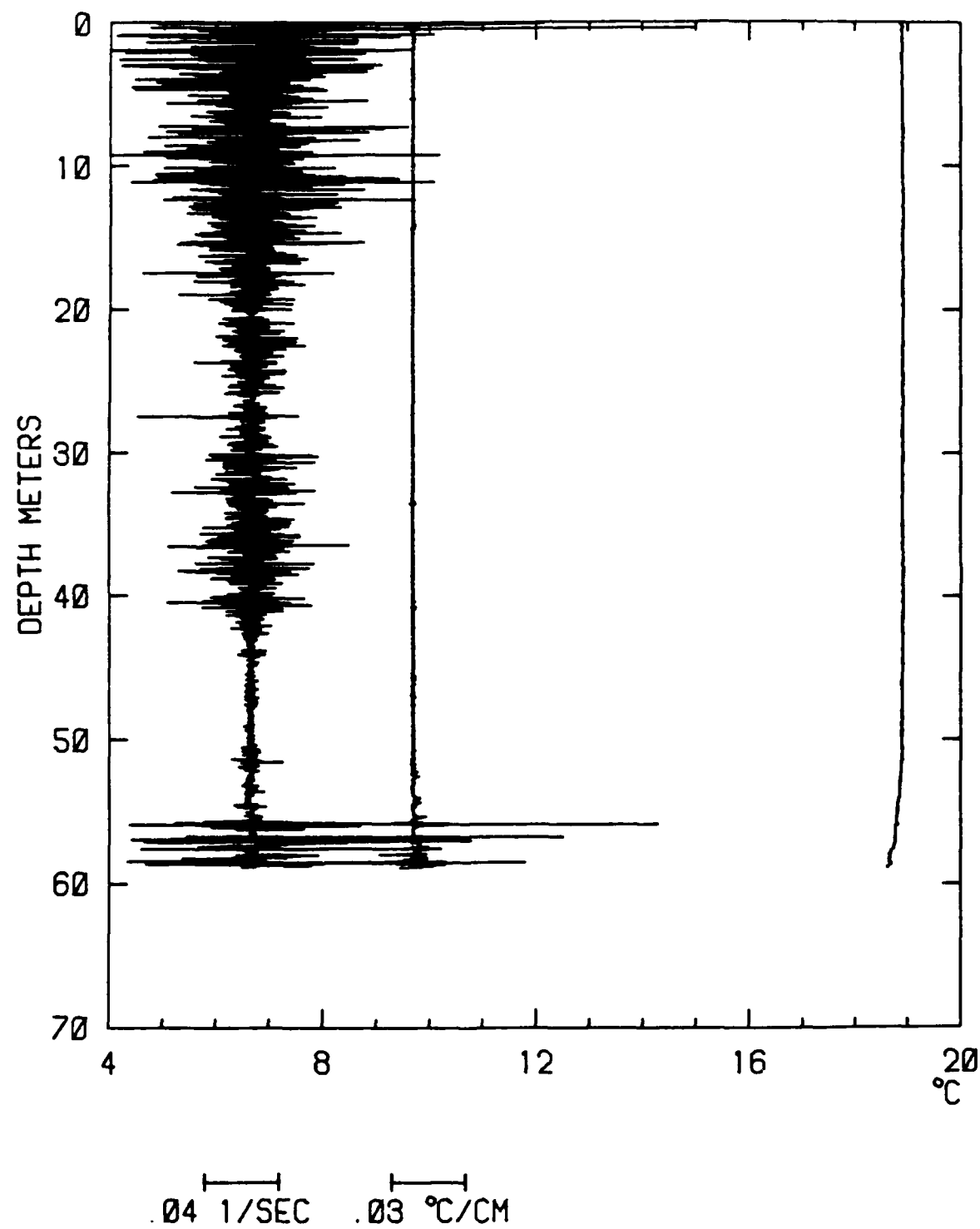
TAPE 69
FILE 4

.04 1/SEC .03 °C/CM

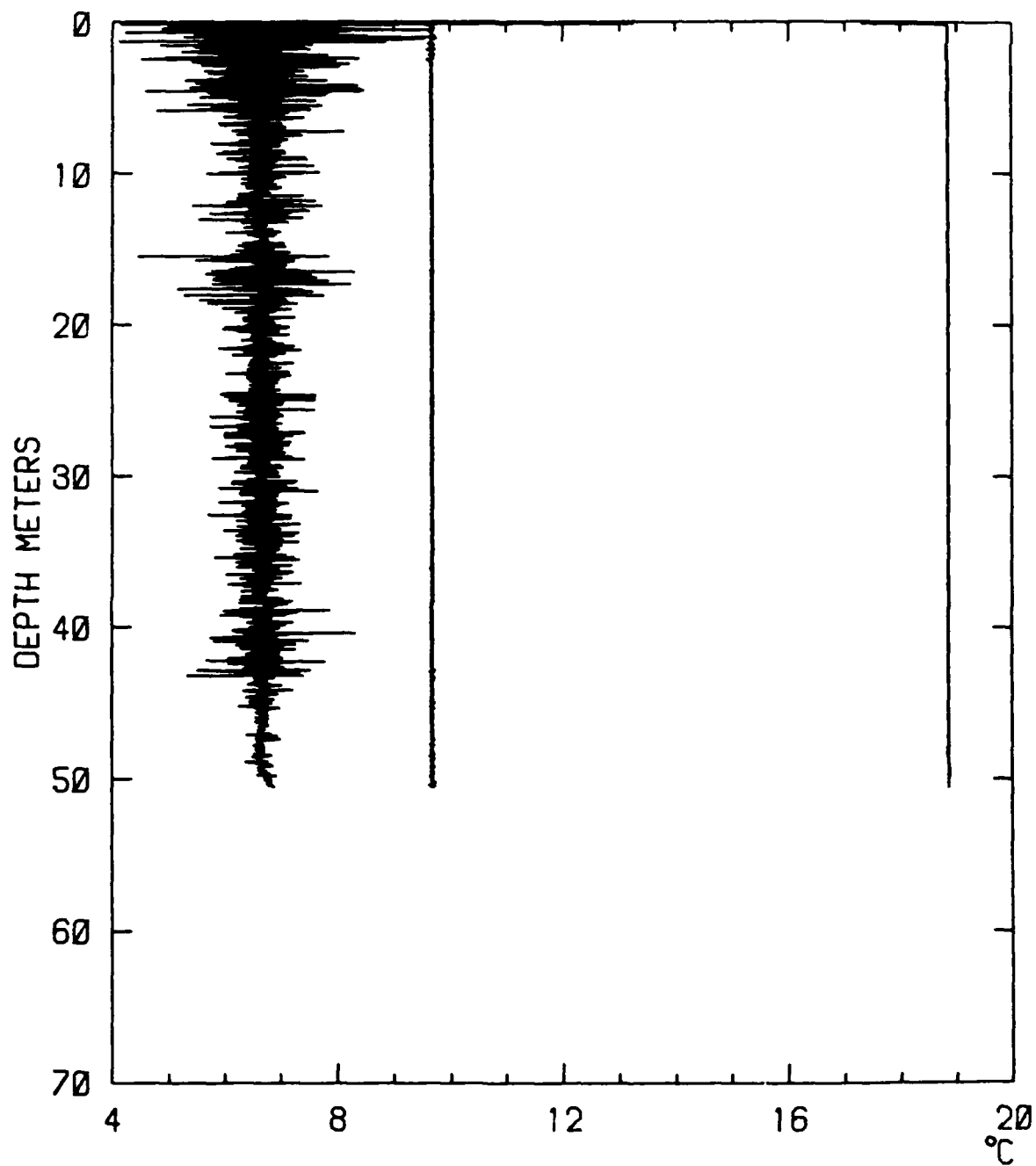
13-NOV-83 00:30

TAPE 69
FILE 5

13-NOV-83 00:48

TAPE 69
FILE 7

13-NOV-83 01:08

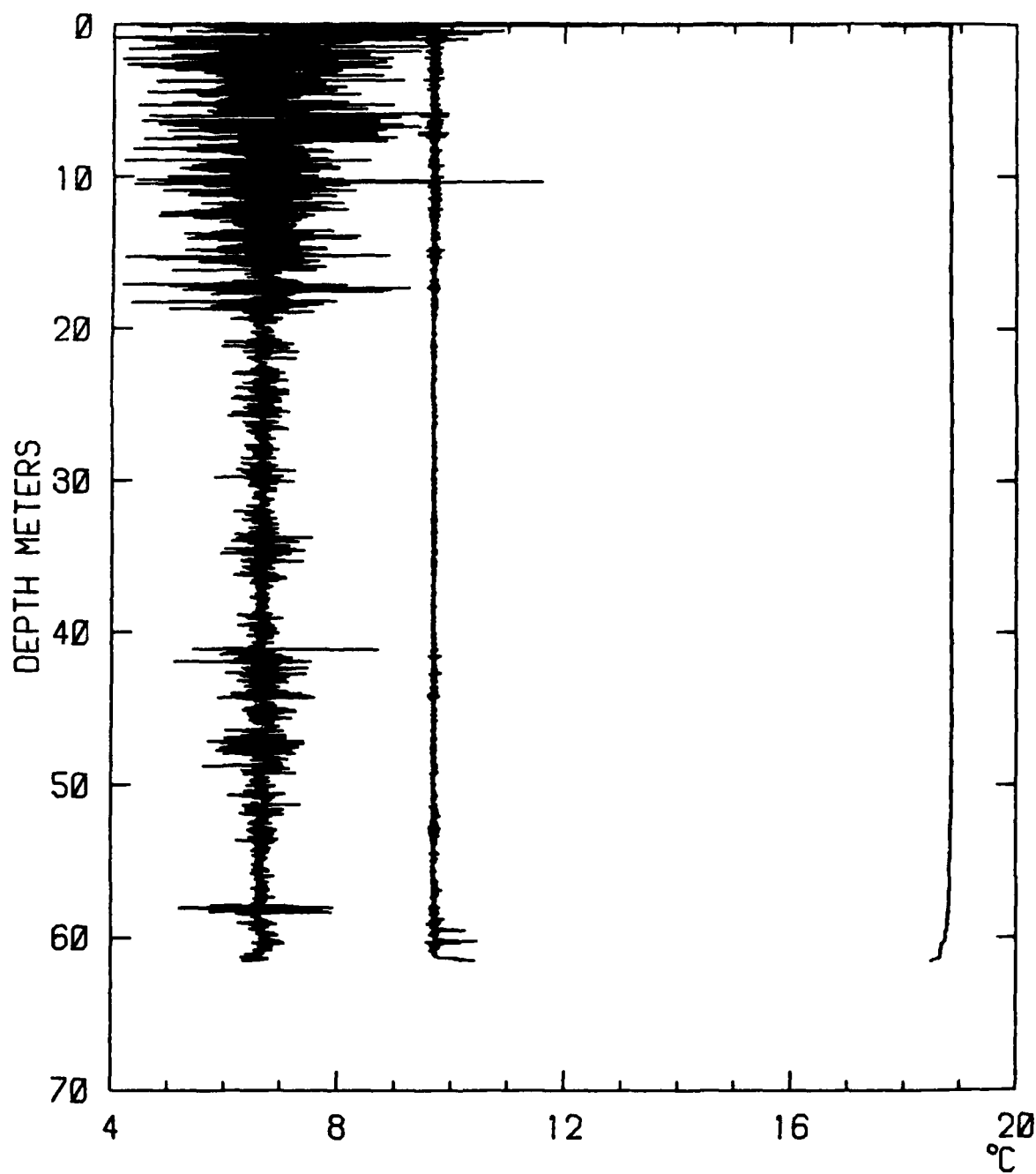
TAPE 69
FILE 8

.04 1/SEC .03 °C/CM

13-NOV-83 01:30

214

TAPE 69
FILE 9

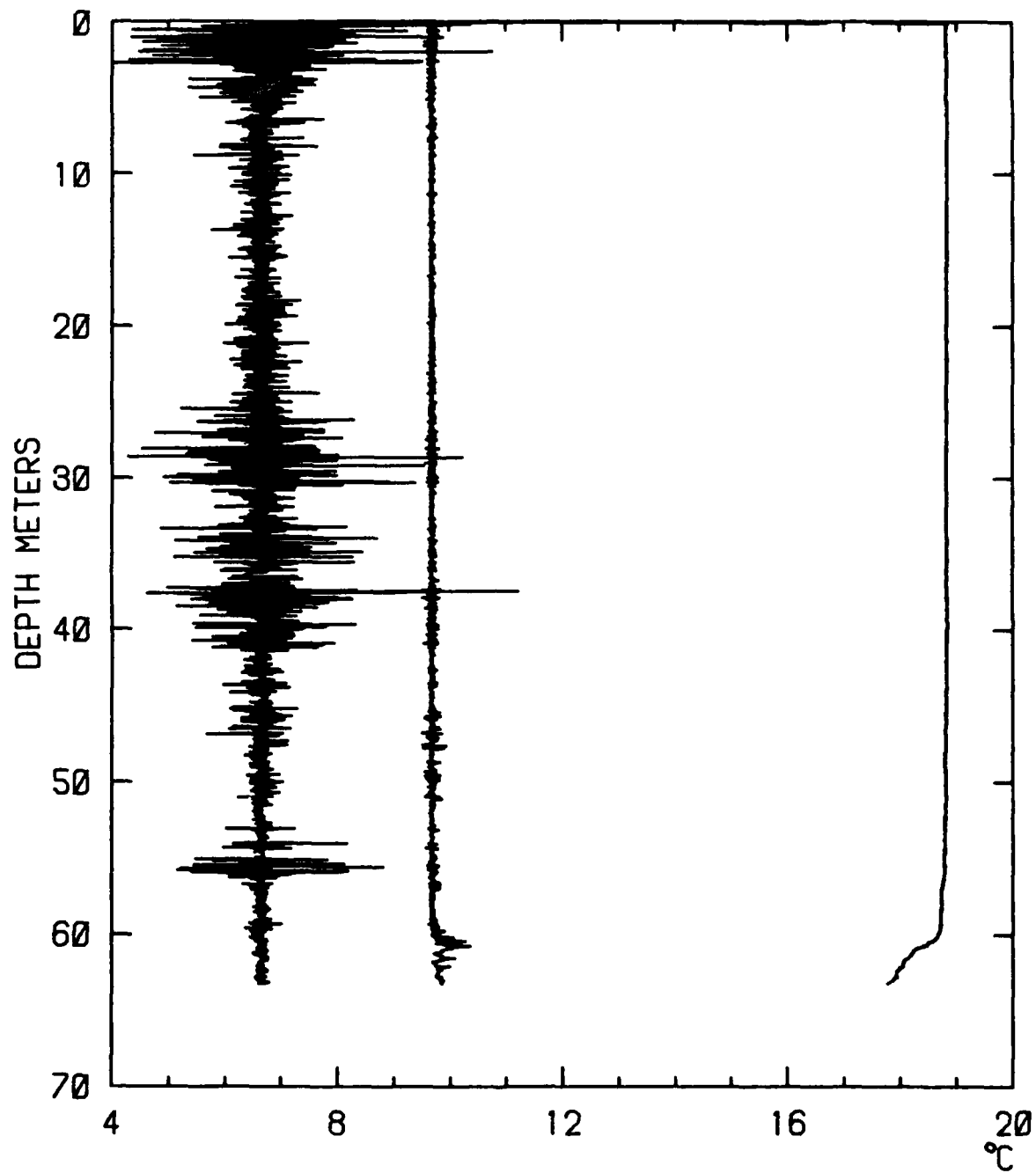


.04 1/SEC

.03 °C/CM

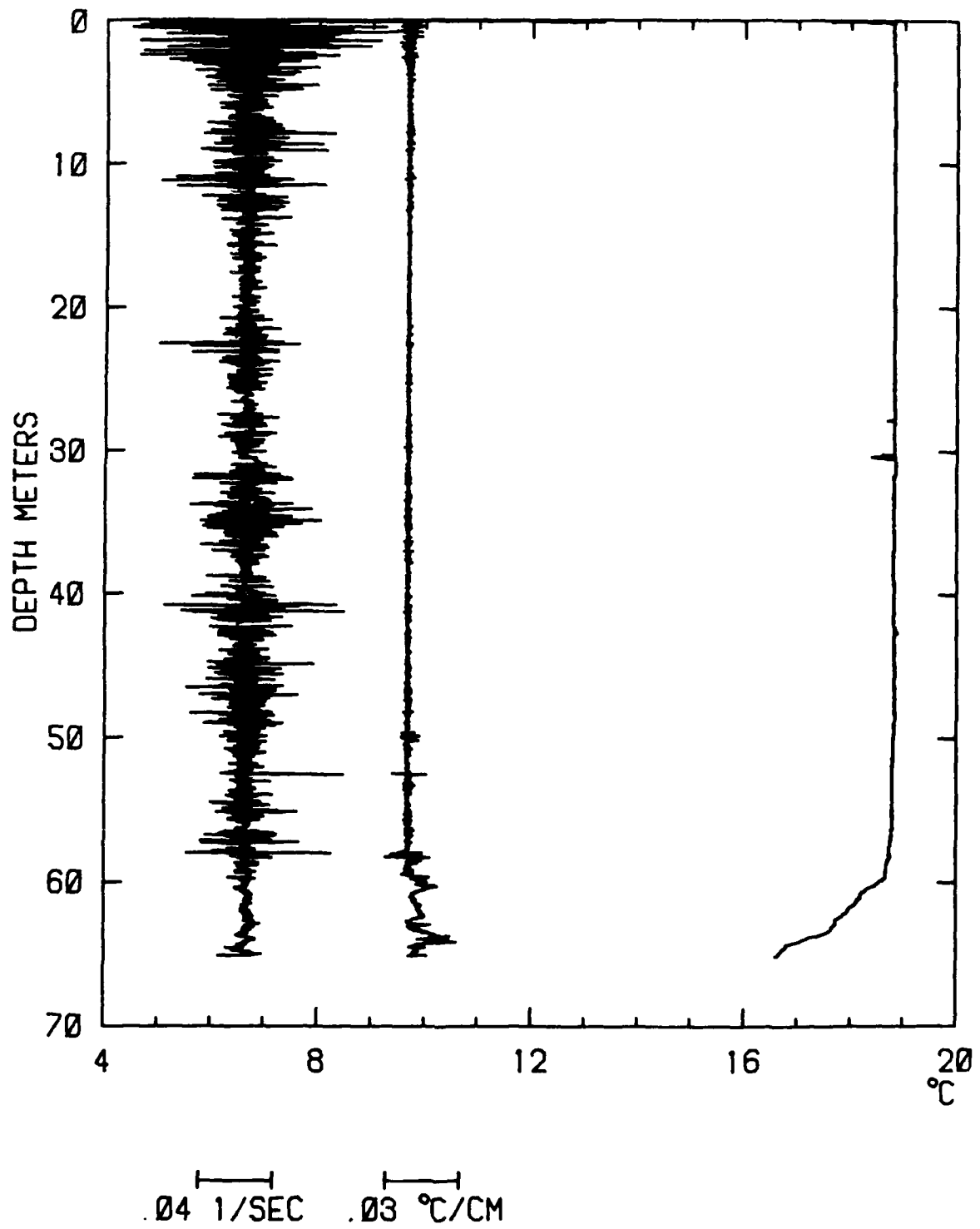
215
13-NOV-83 01:43

TAPE 69
FILE 10



.04 1/SEC .03 °C/CM

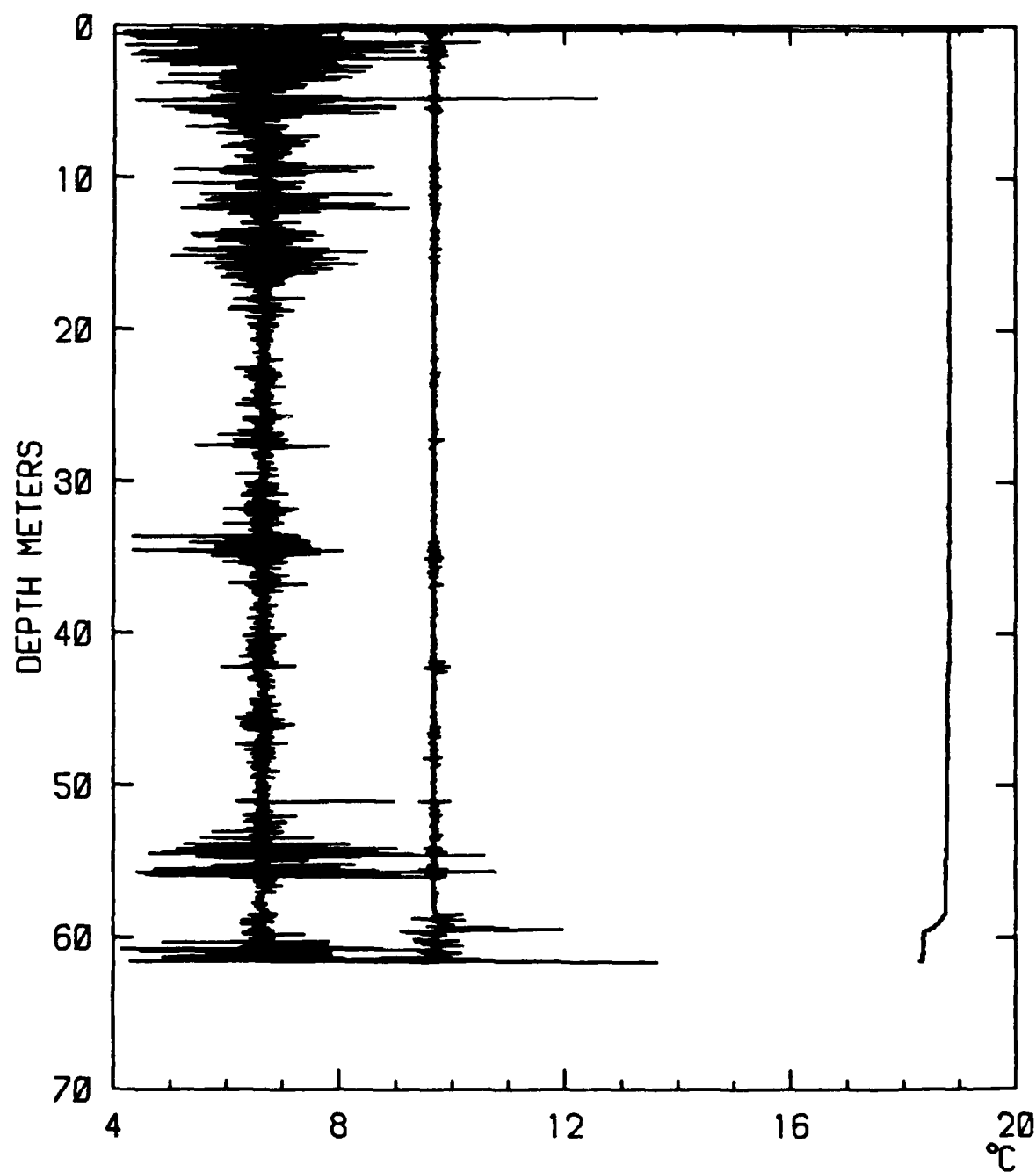
13-NOV-83 01:50

TAPE 69
FILE 11

13-NOV-83 01:59

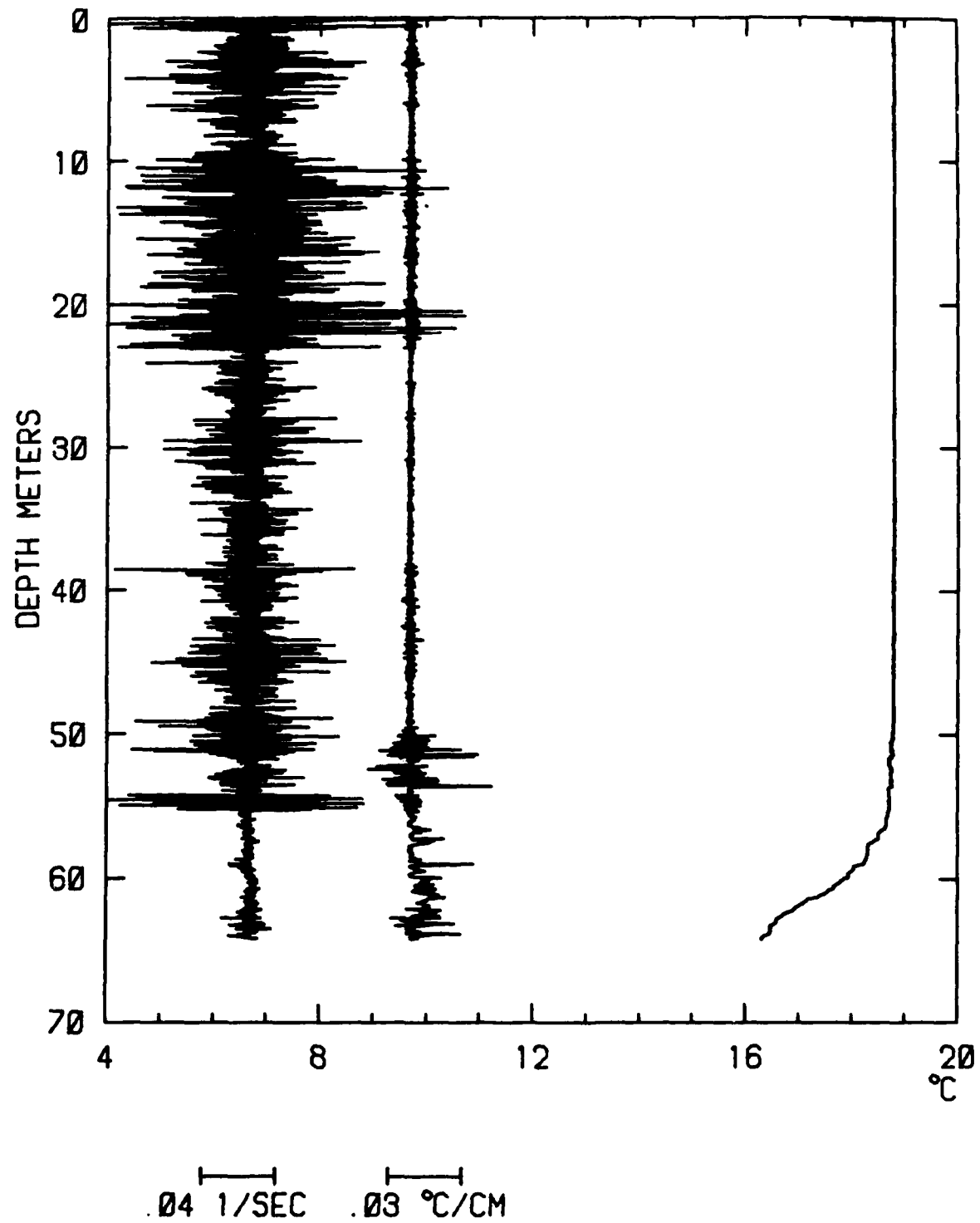
217

TAPE 69
FILE 12

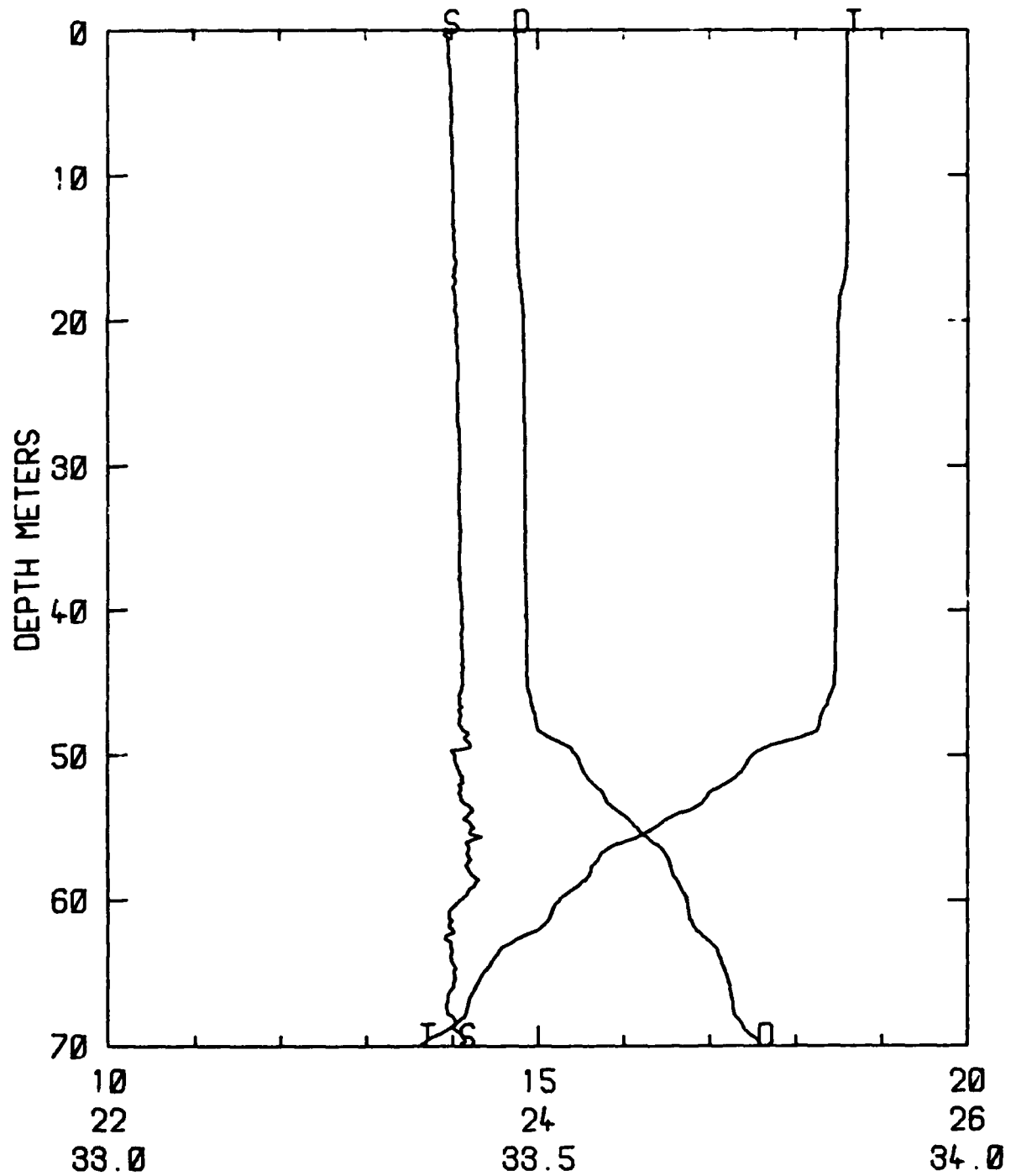


.04 1/SEC .03 °C/CM

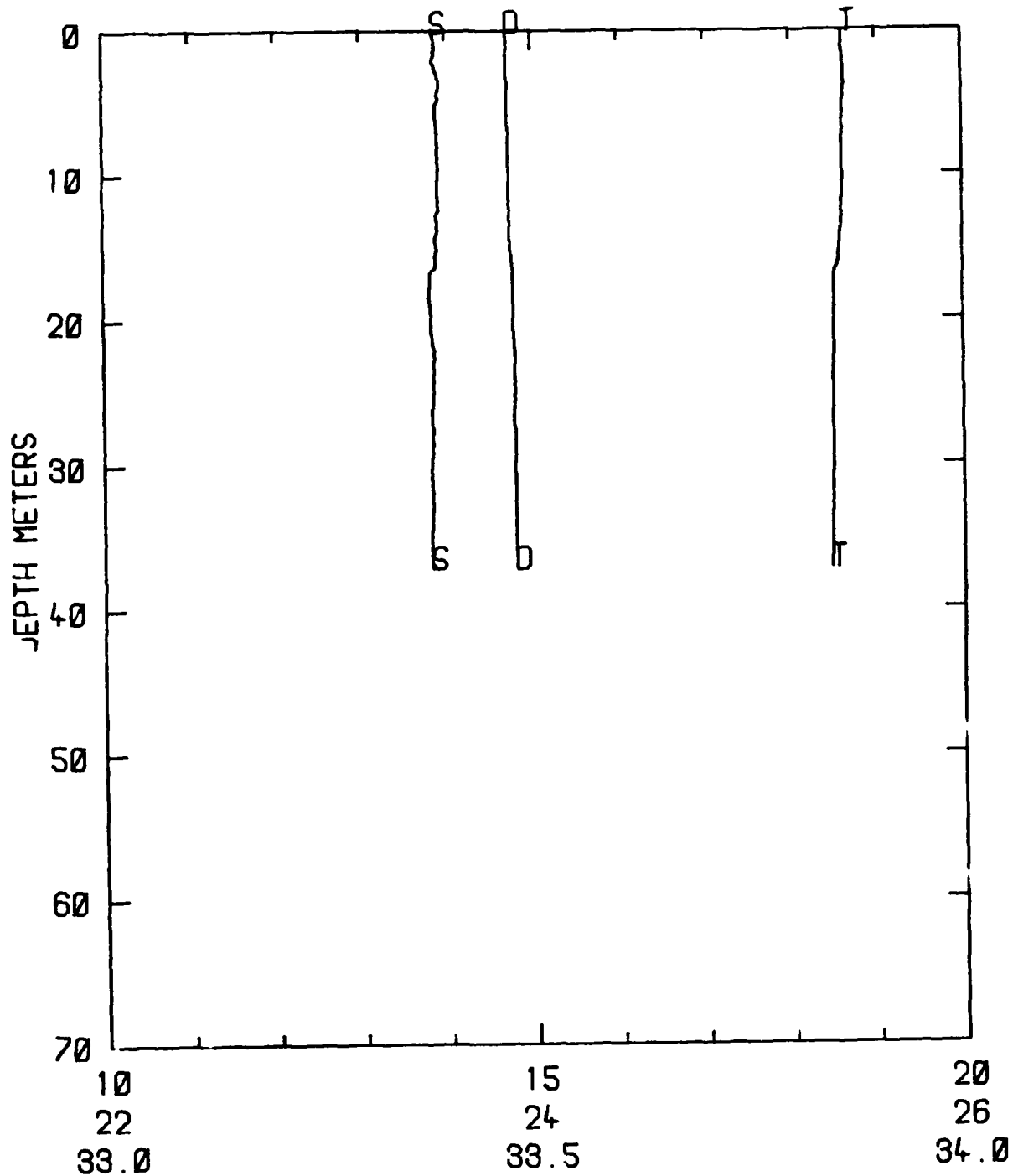
13-NOV-83 02:08

TAPE 69
FILE 13

25-OCT-83 17:20

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 13
FILE 3

25-OCT-83 .9:55

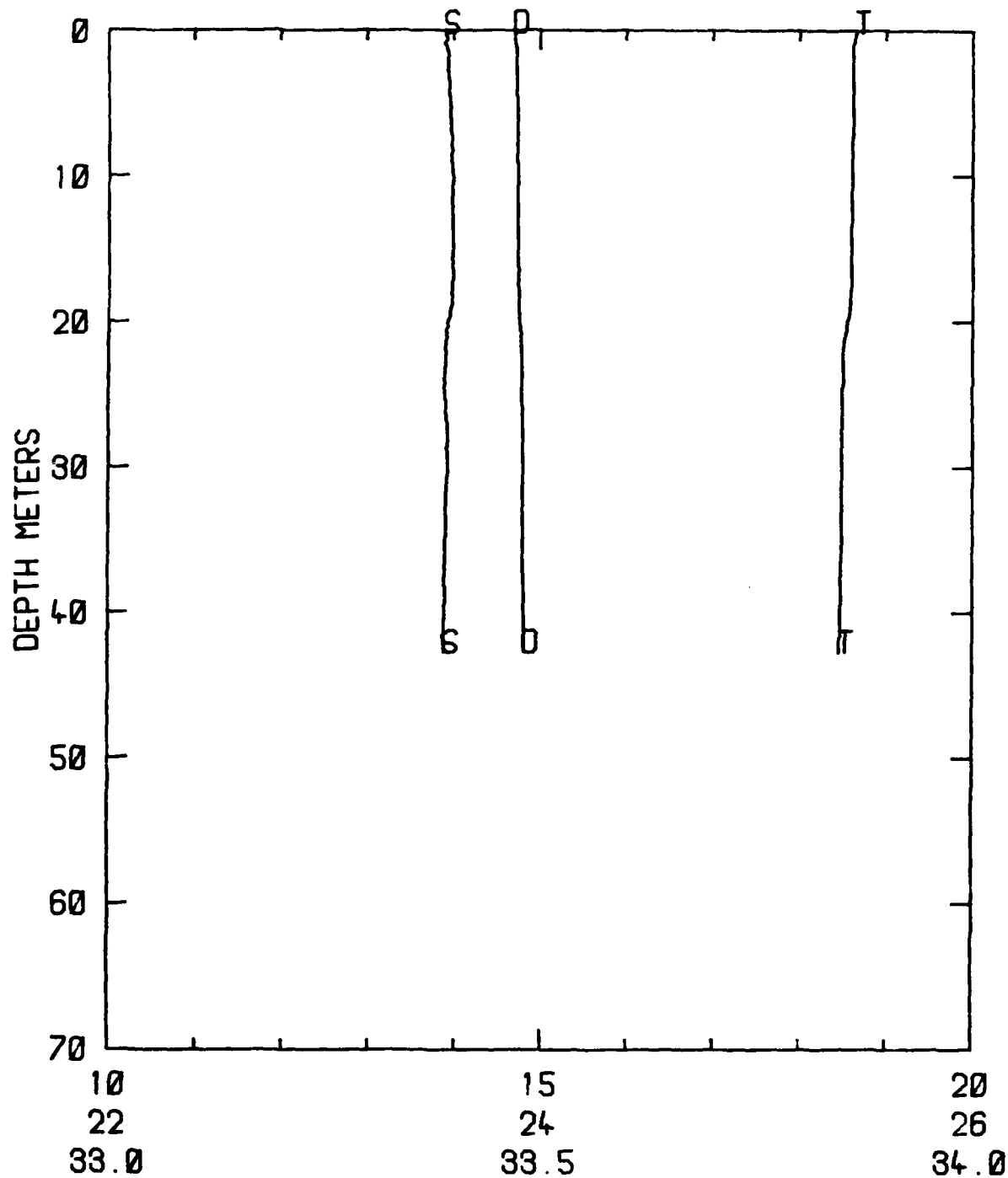
TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 13
FILE 10

25-OCT-83 20:29

222

TEMP, SALINITY, SIGMA T
NE.L BROWN SENSOR

TAPE 14
FILE 2

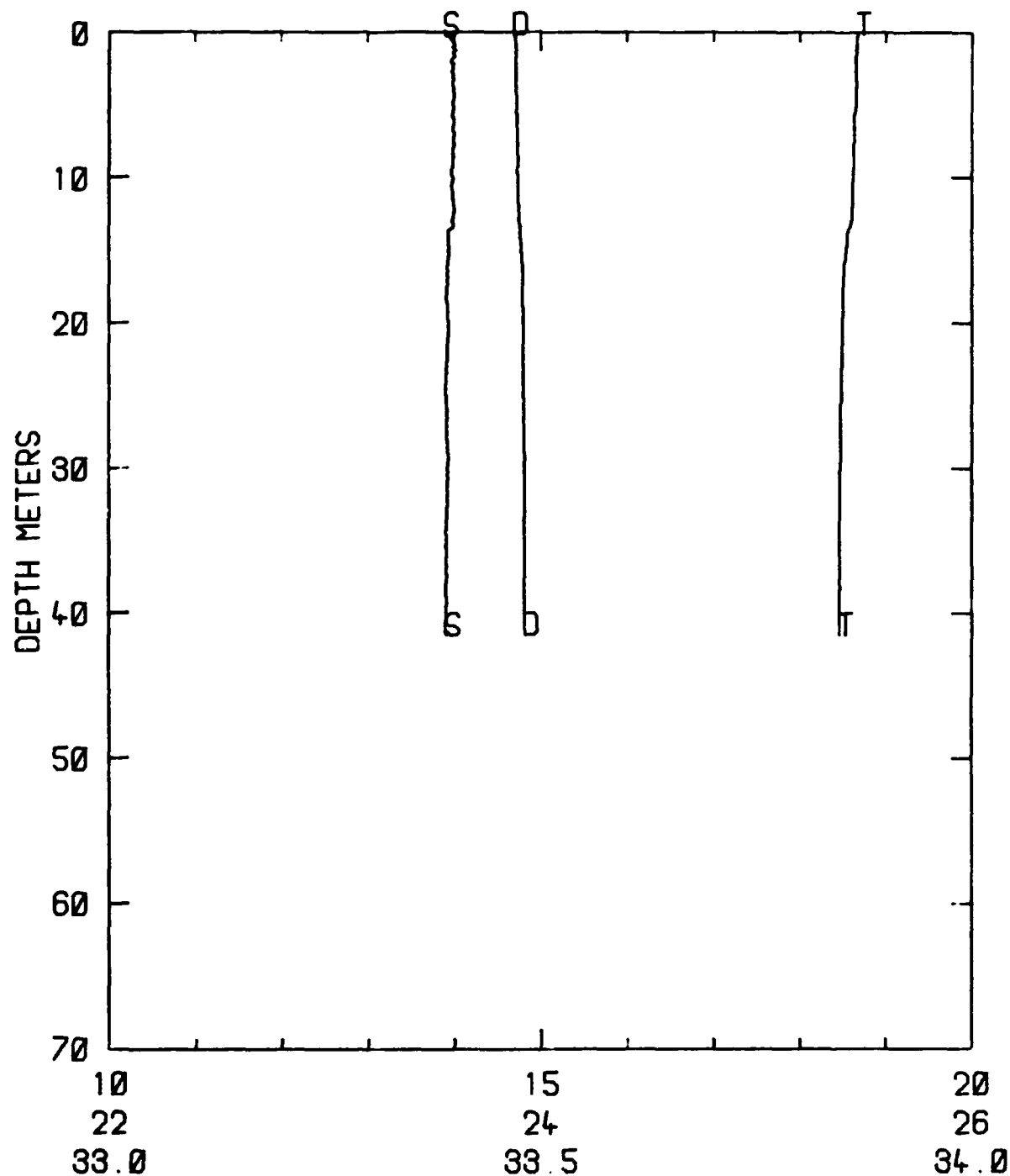


26-OCT-83 18:22

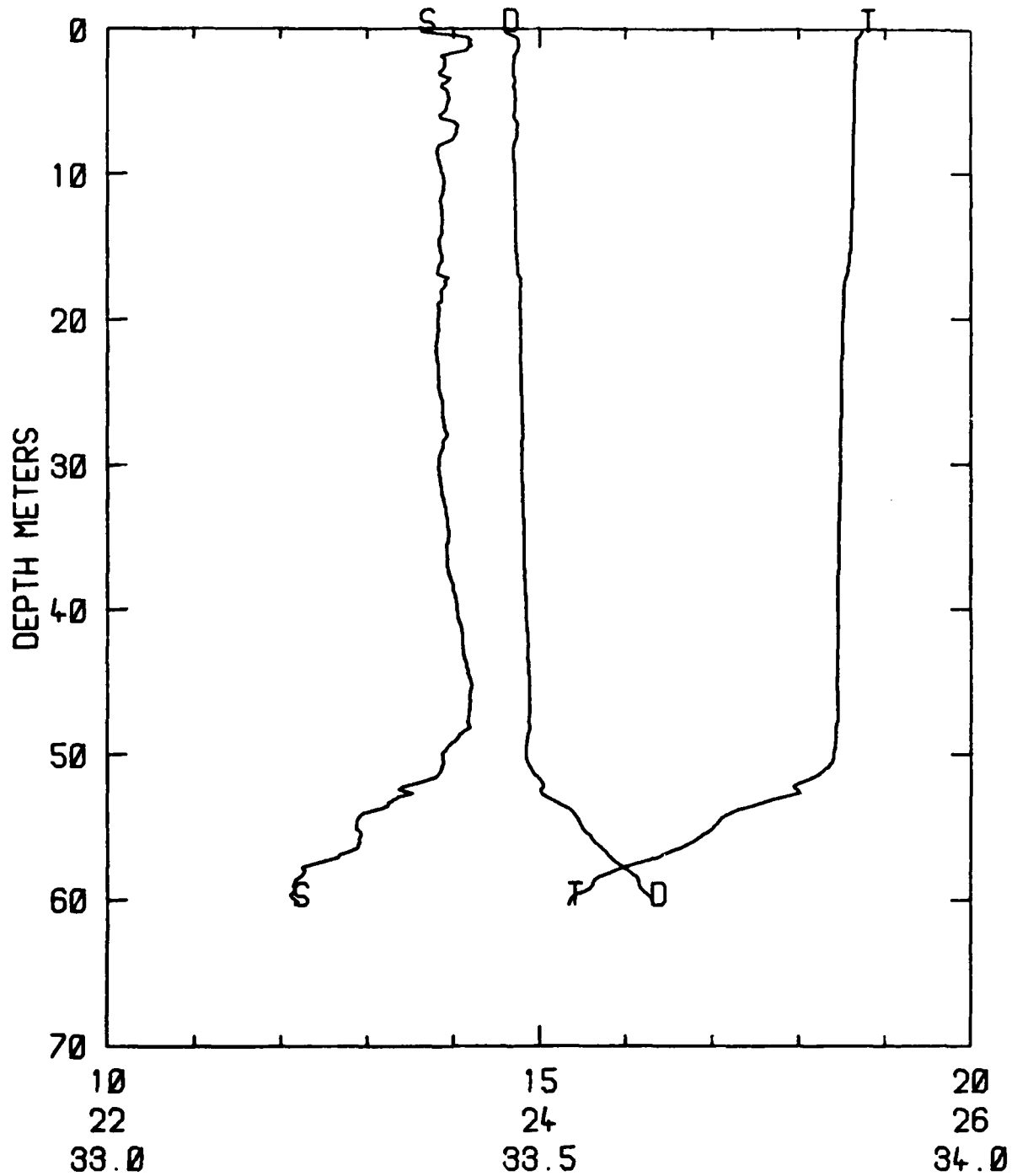
223

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSOR

TAPE 16
FILE 7



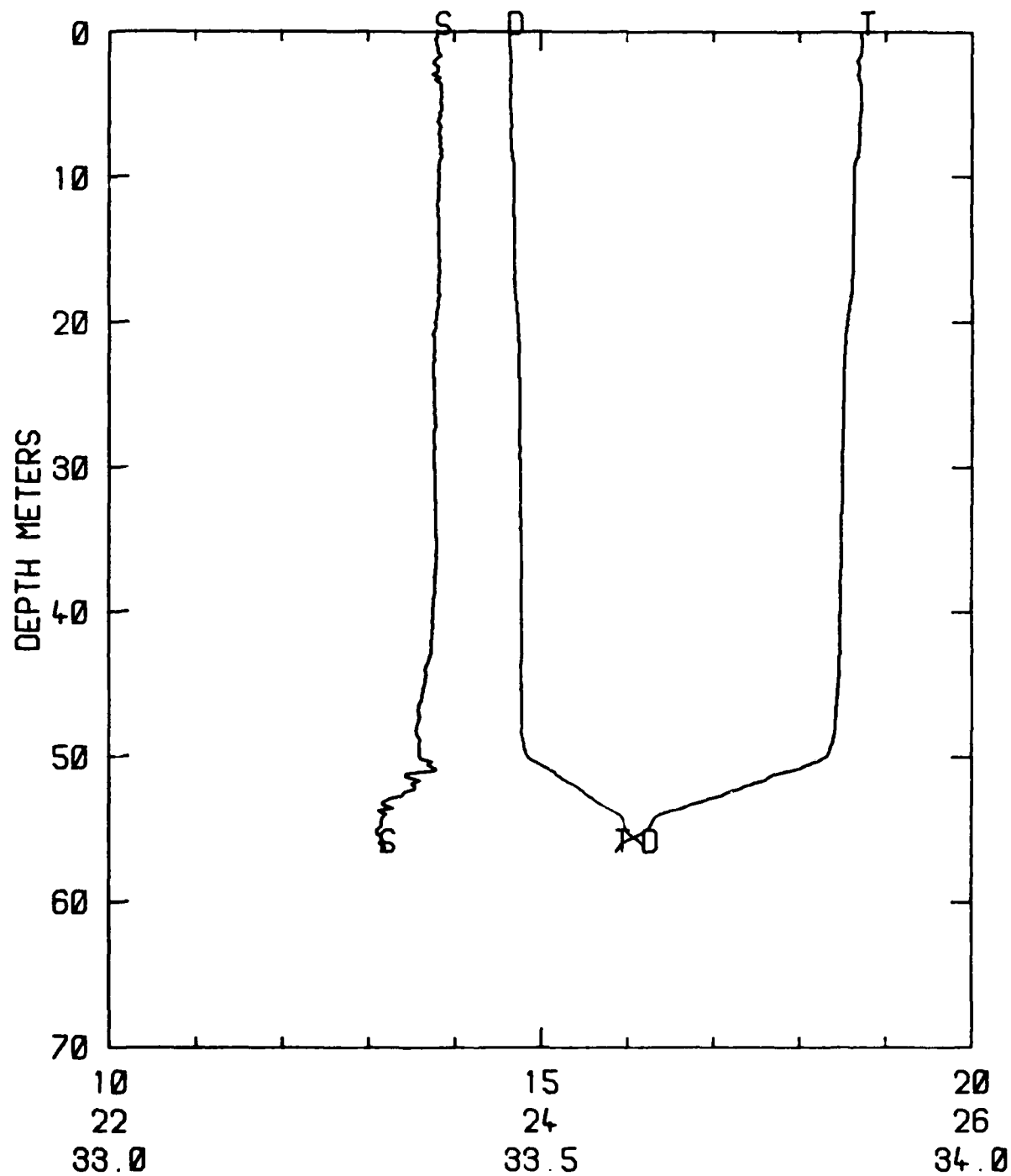
26-OCT-83 20:31

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITYTAPE 16
FILE 12

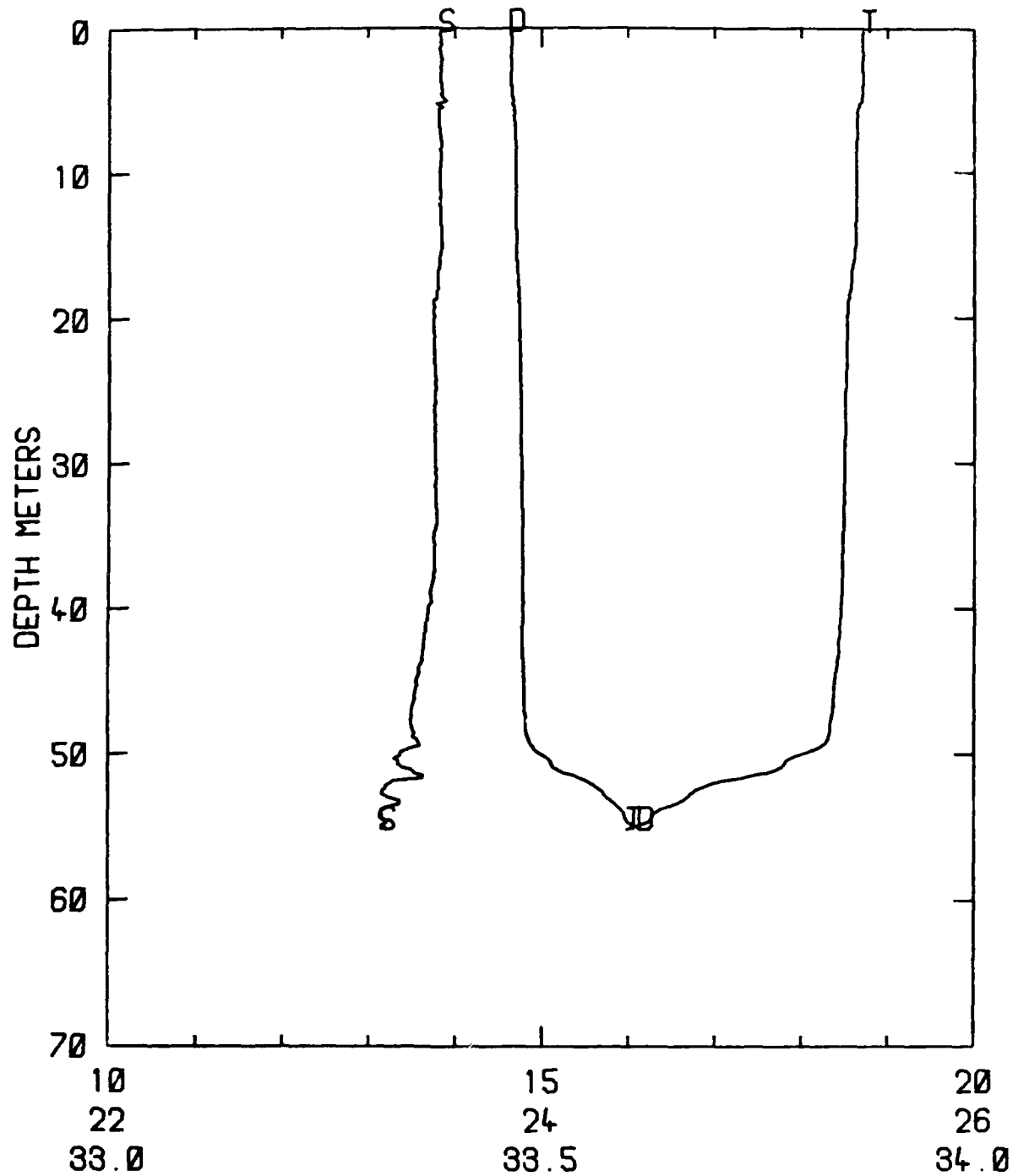
26-OCT-83 21:45 ^{2.0}

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSOR

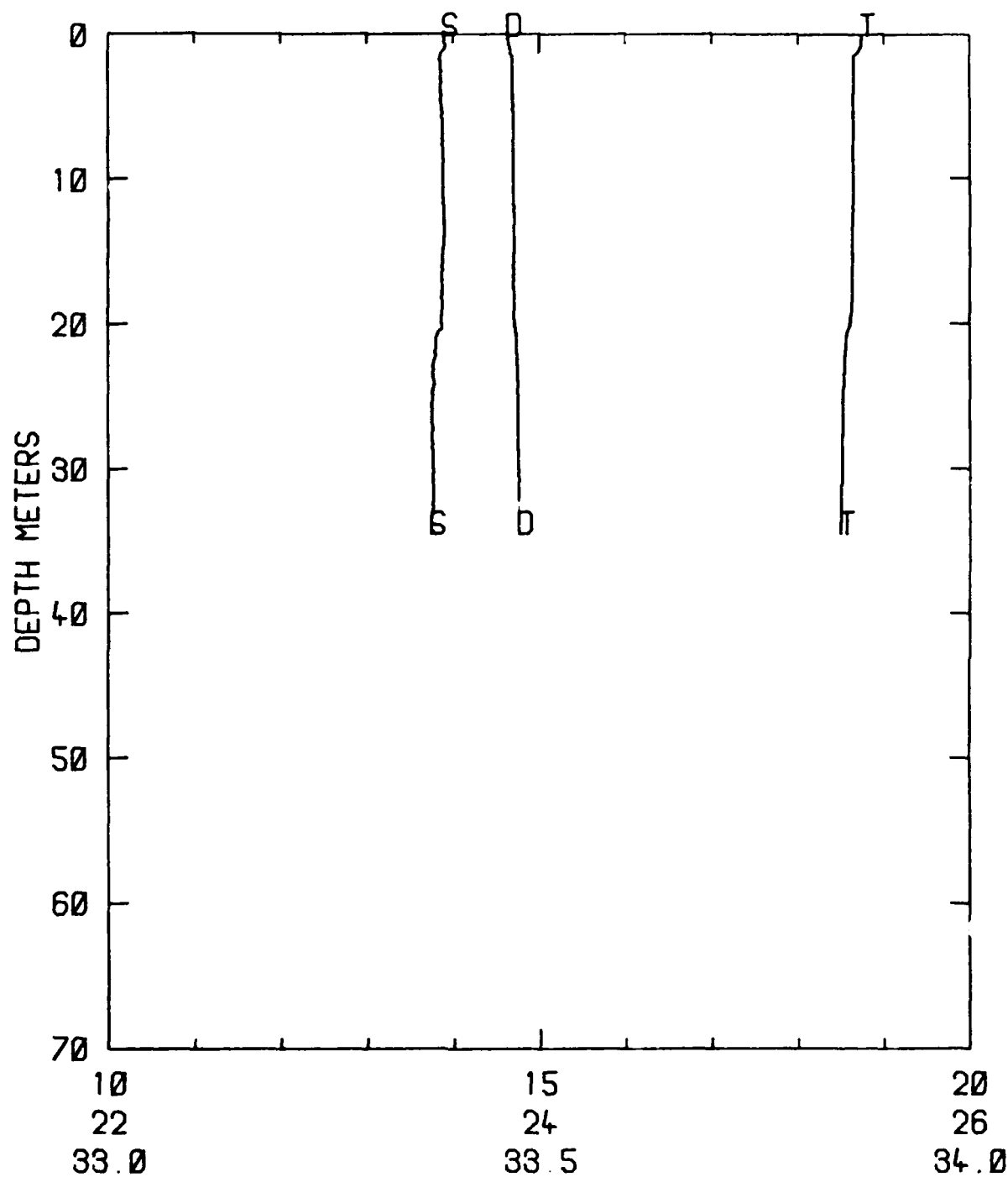
TAPE 16
FILE 16



26-OCT-83 22:37

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 17
FILE 3

26-OCT-83 23:17

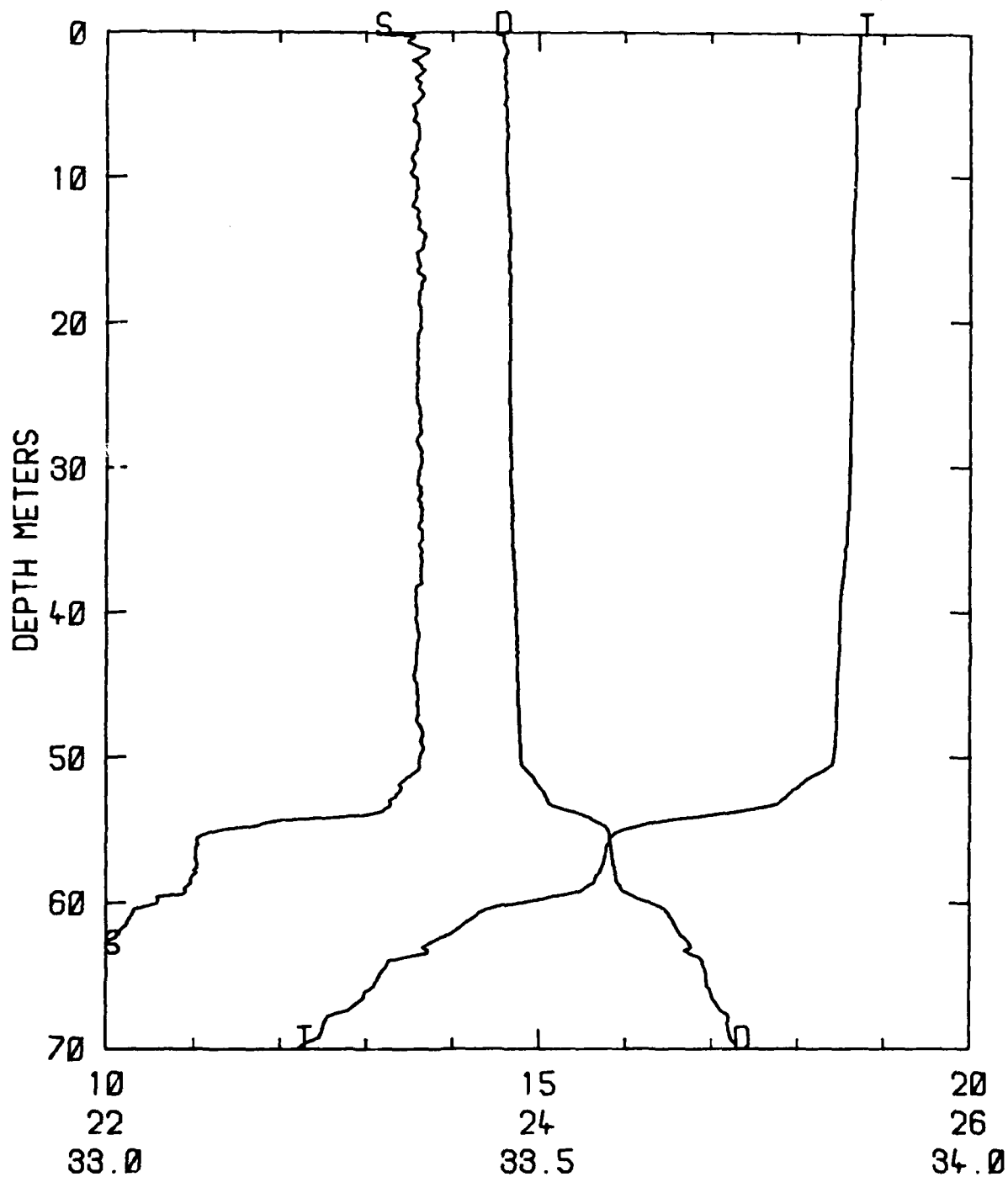
TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 17
FILE 9

29-OCT-83 19:00

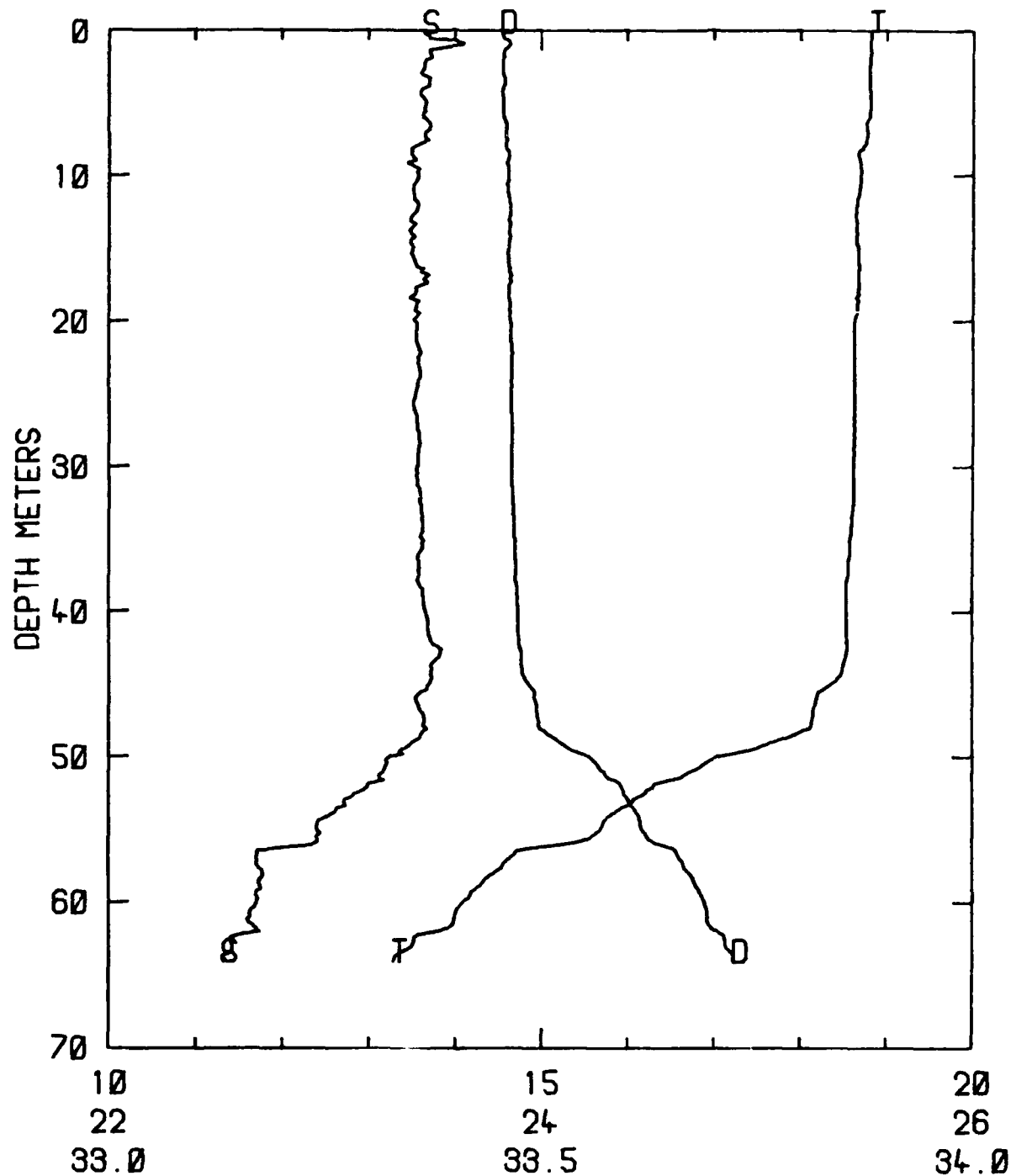
228

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITY

TAPE 30
FILE 3



29-OCT-83 21:23

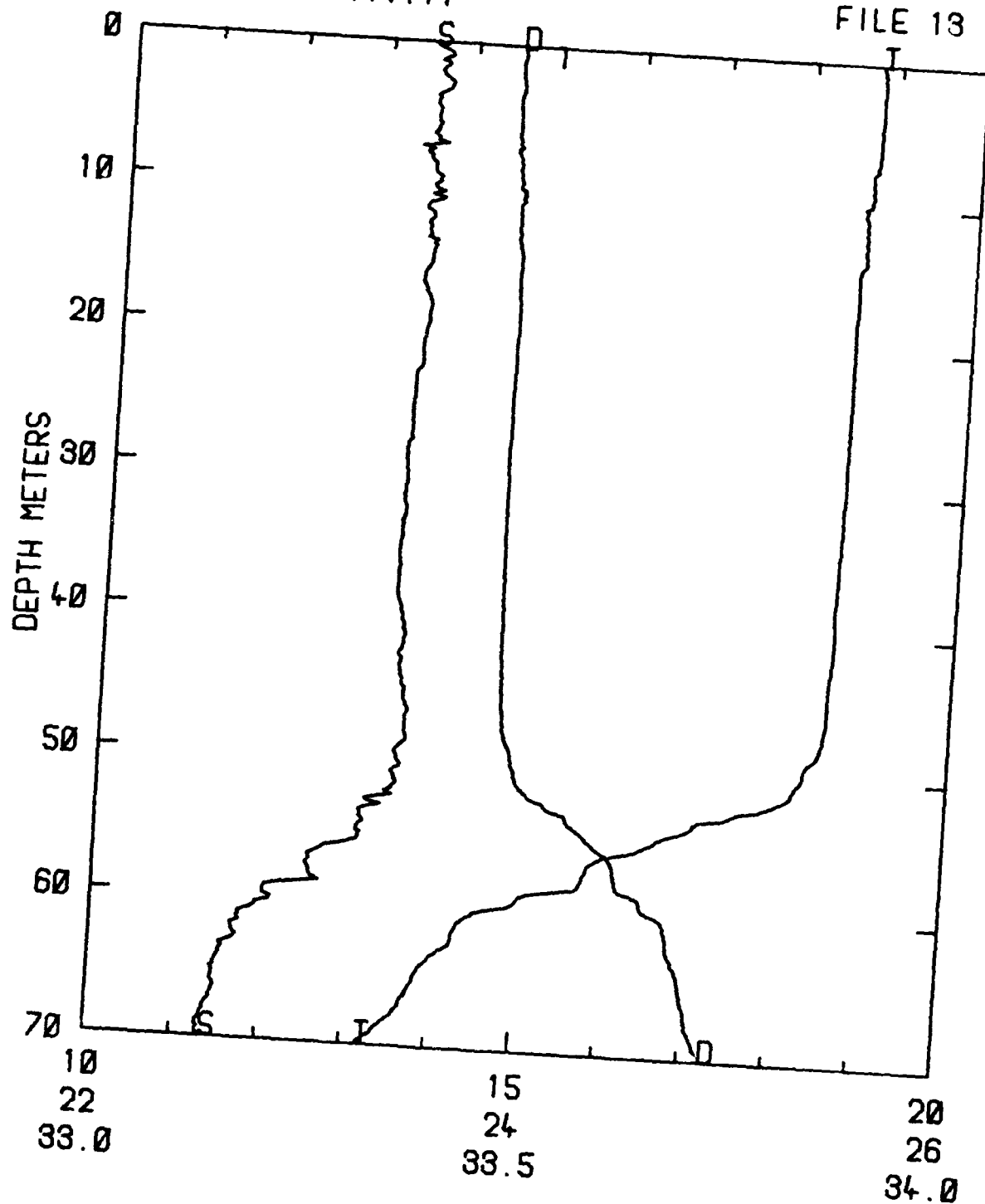
TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITYTAPE 31
FILE 8

29-OCT-83 22:05

230

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITY

TAPE 31
FILE 13

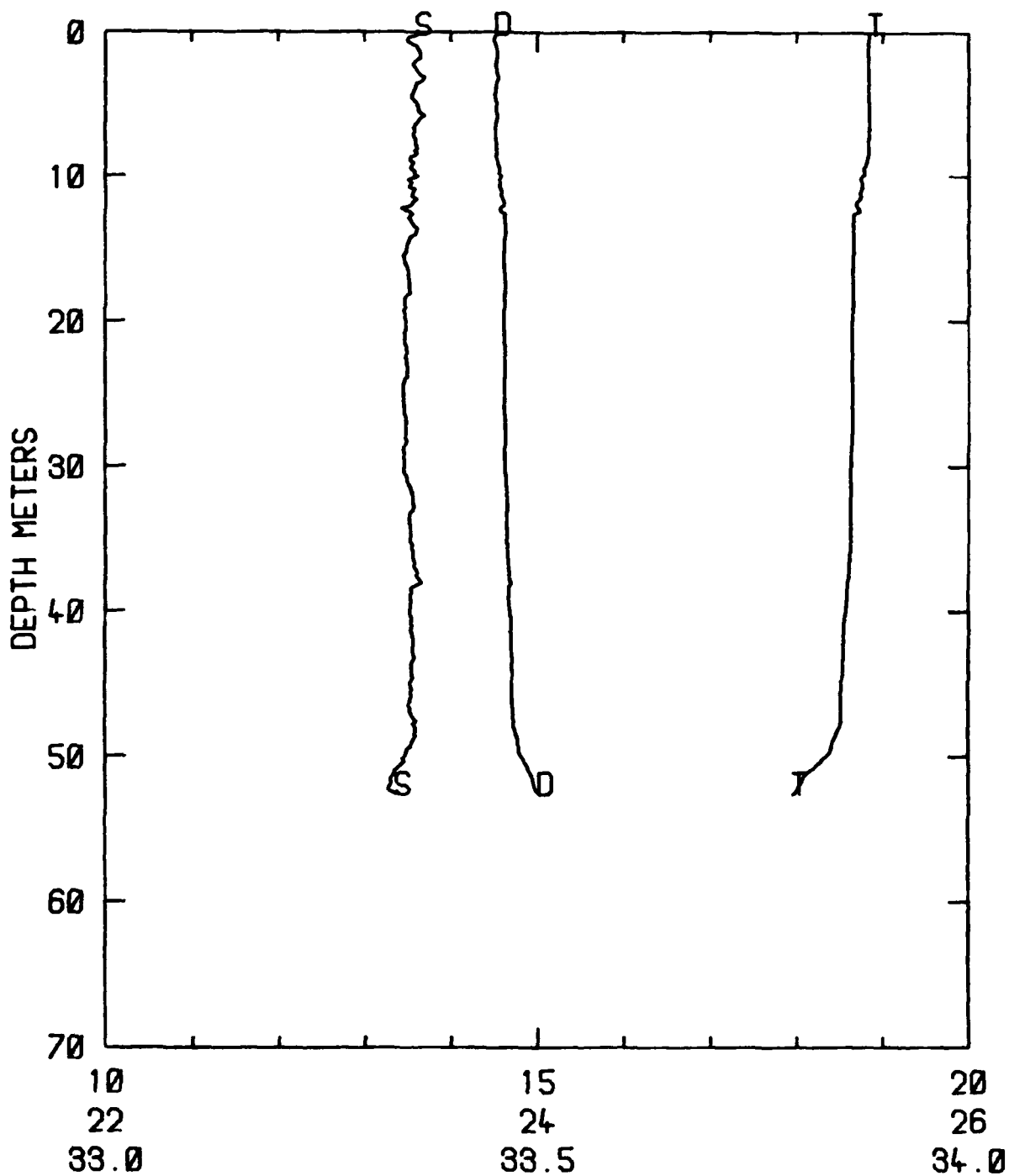


29-OCT-83 23:32

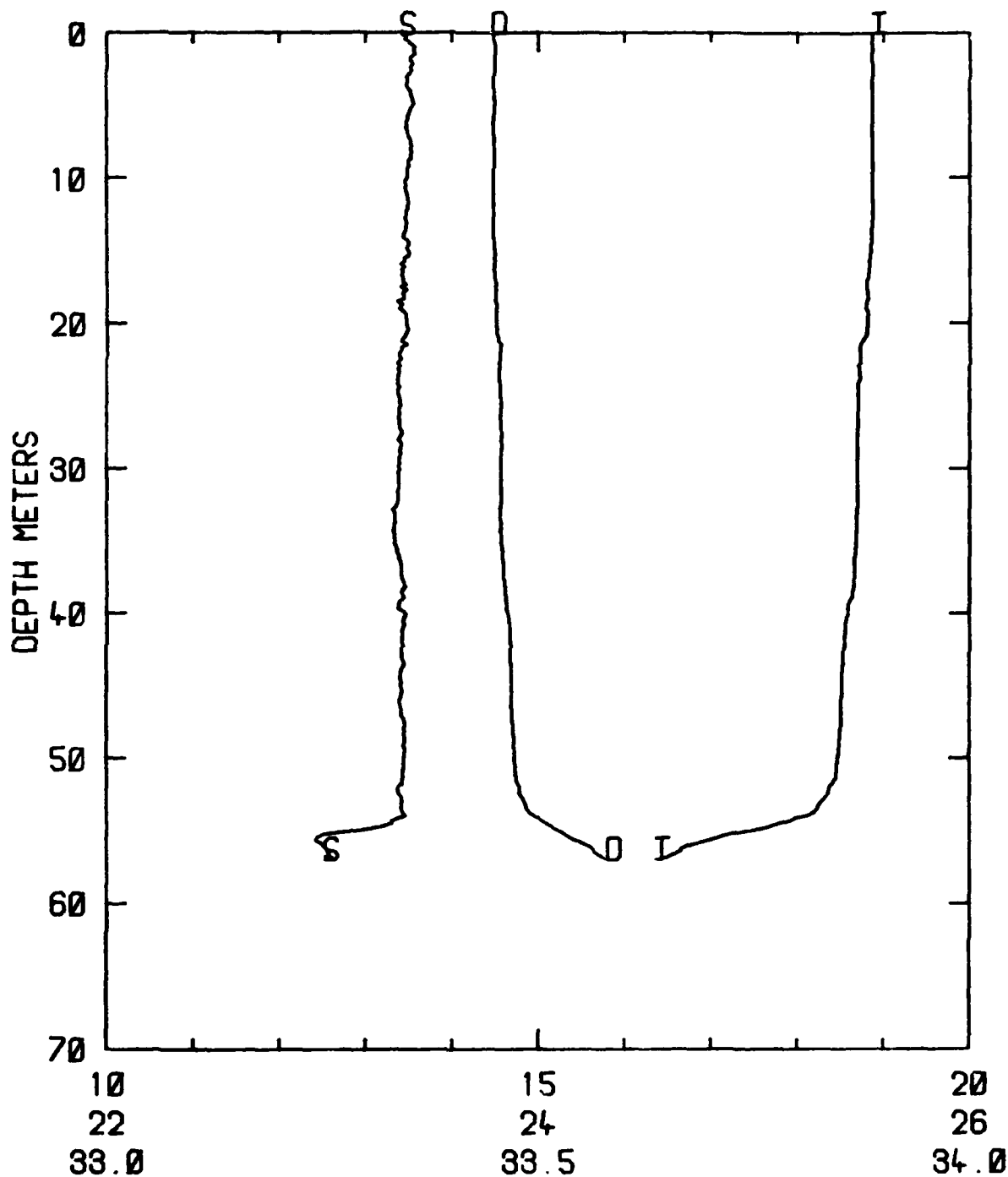
231

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITY

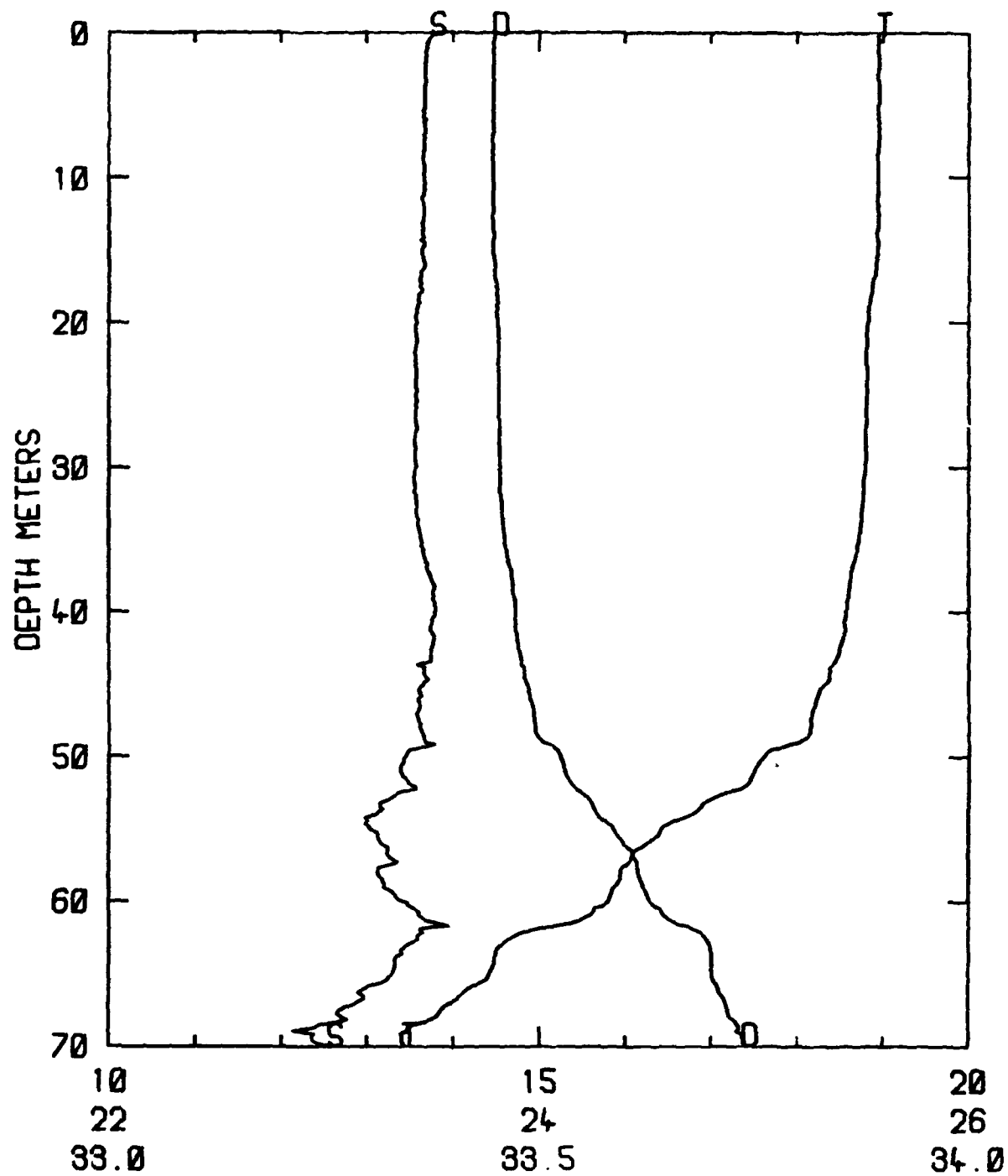
TAPE 32
FILE 10



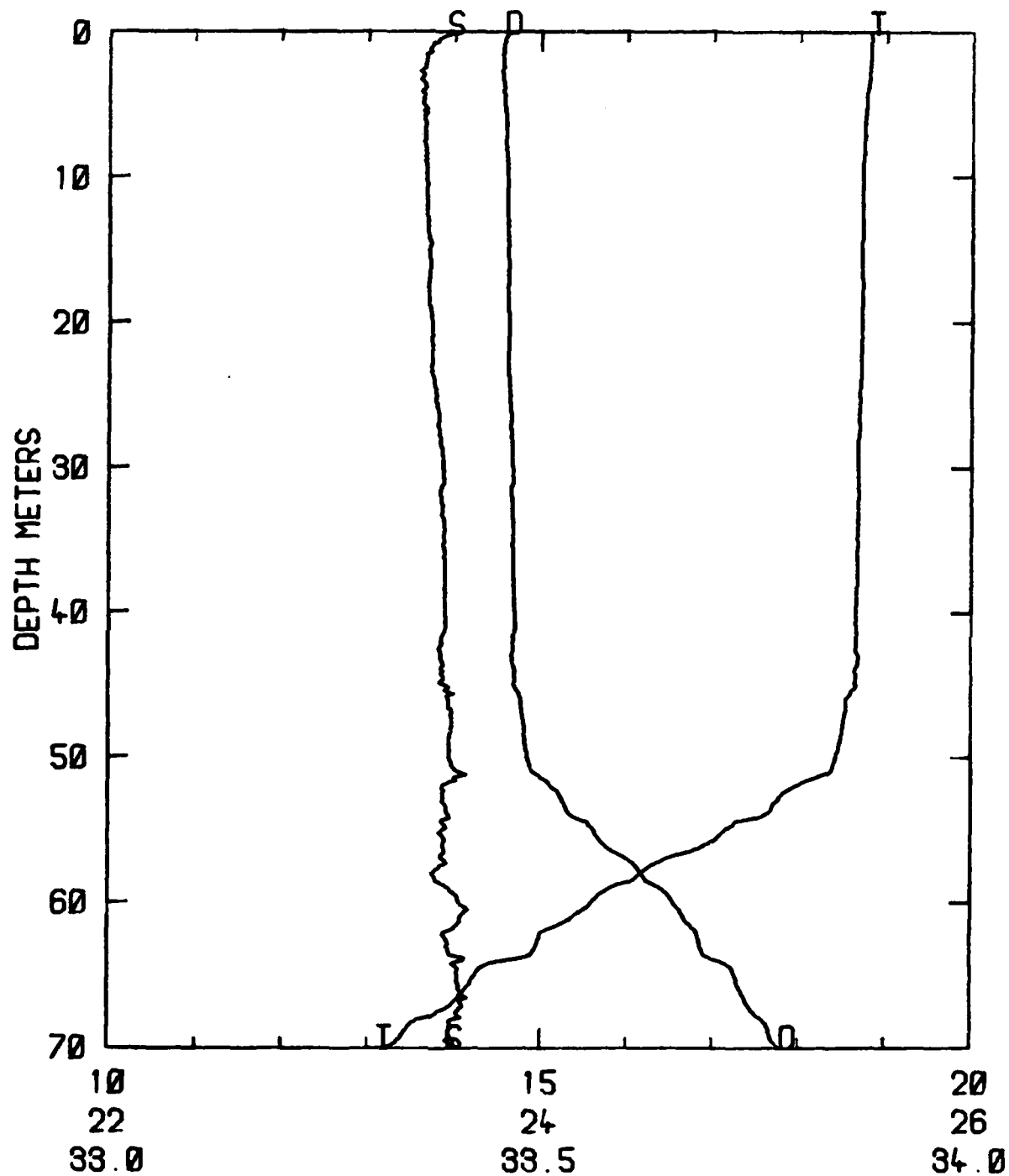
30-OCT-83 01:23

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITYTAPE 33
FILE 4

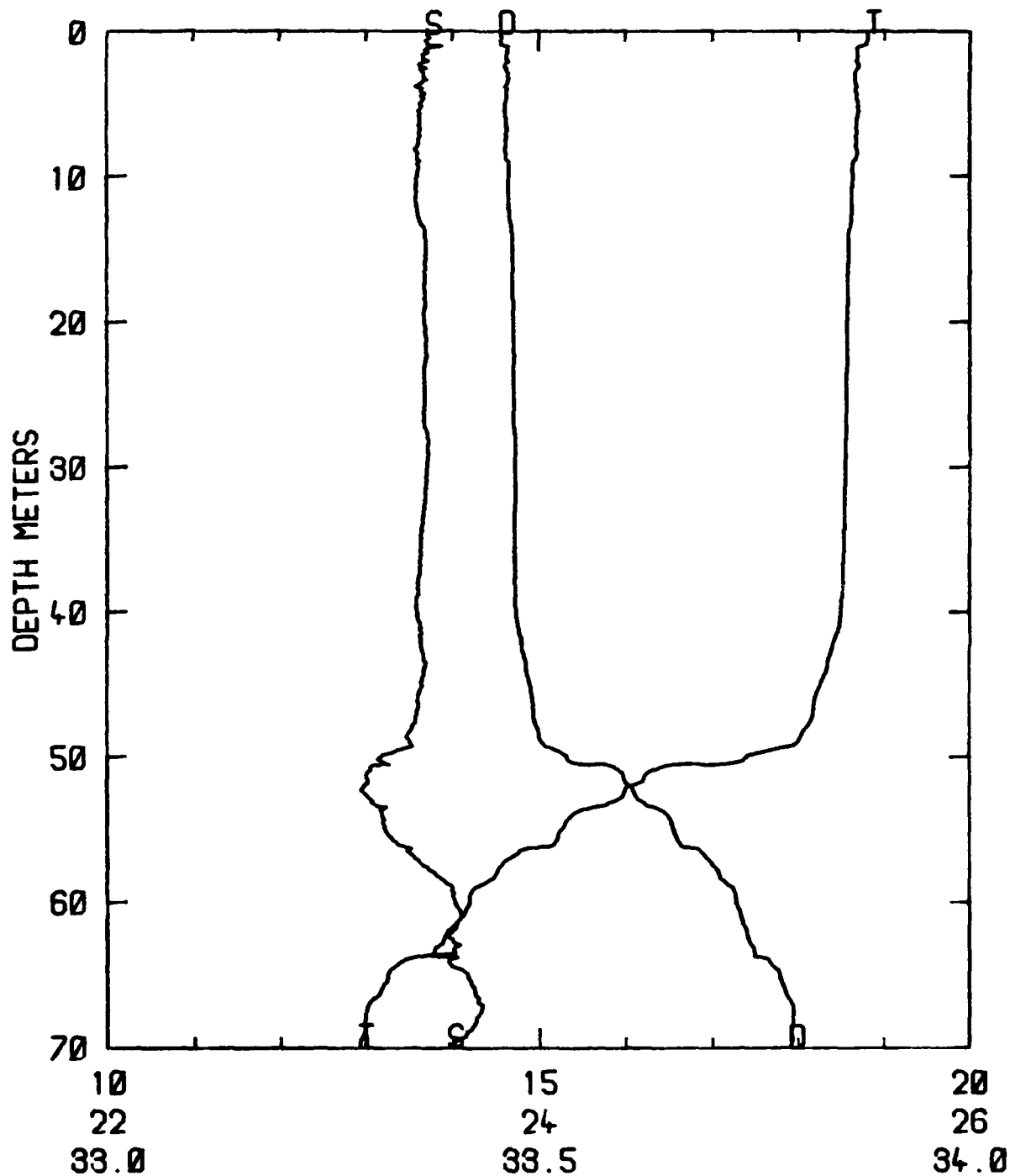
30-OCT-83 03:04

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 33
FILE 18

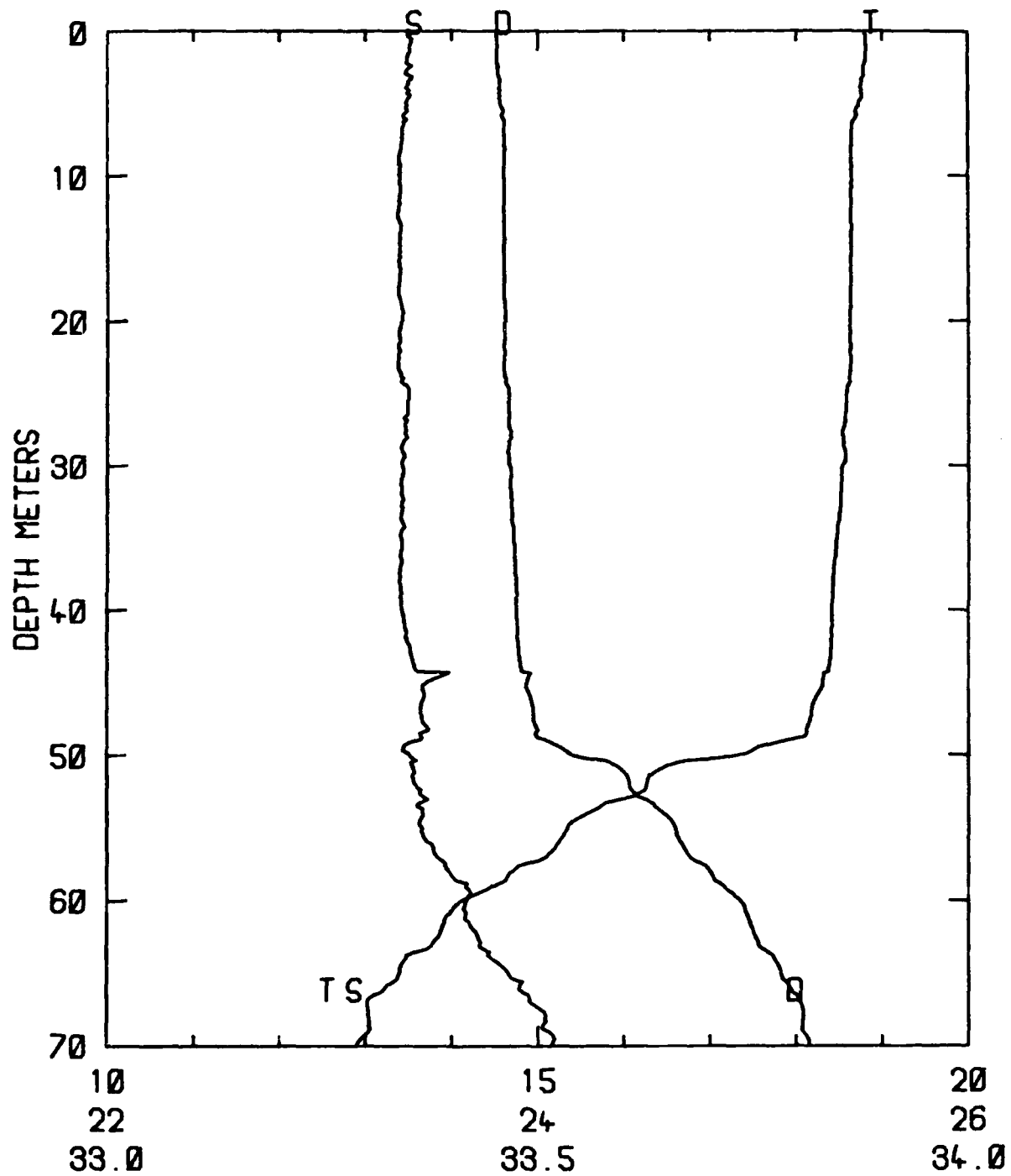
30-OCT-83 18:16

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 34
FILE 3

30-OCT-83 20:32

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITYTAPE 34
FILE 9

30-OCT-83 21:10

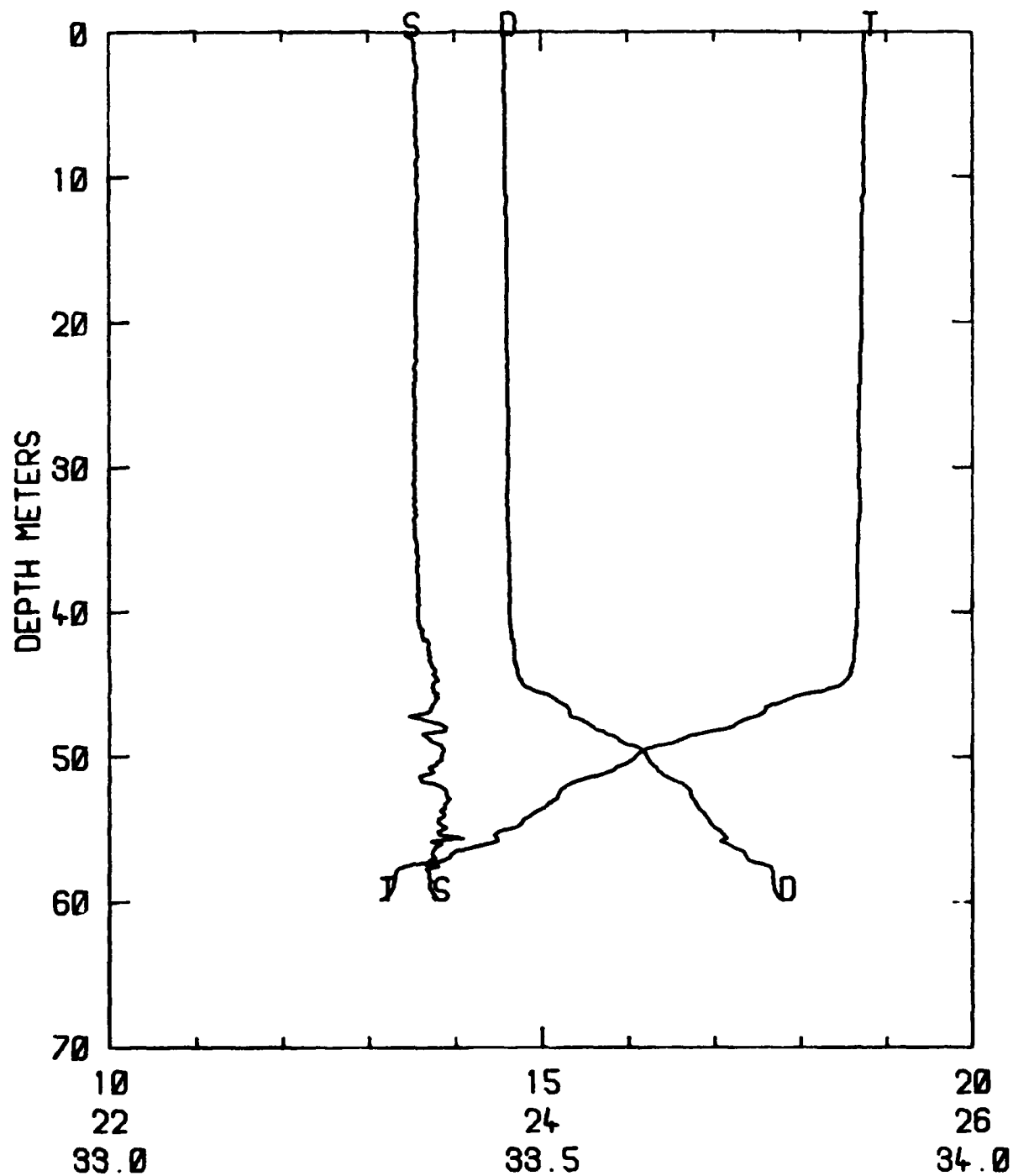
TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITYTAPE 35
FILE 11

3-NOV-83 18:38

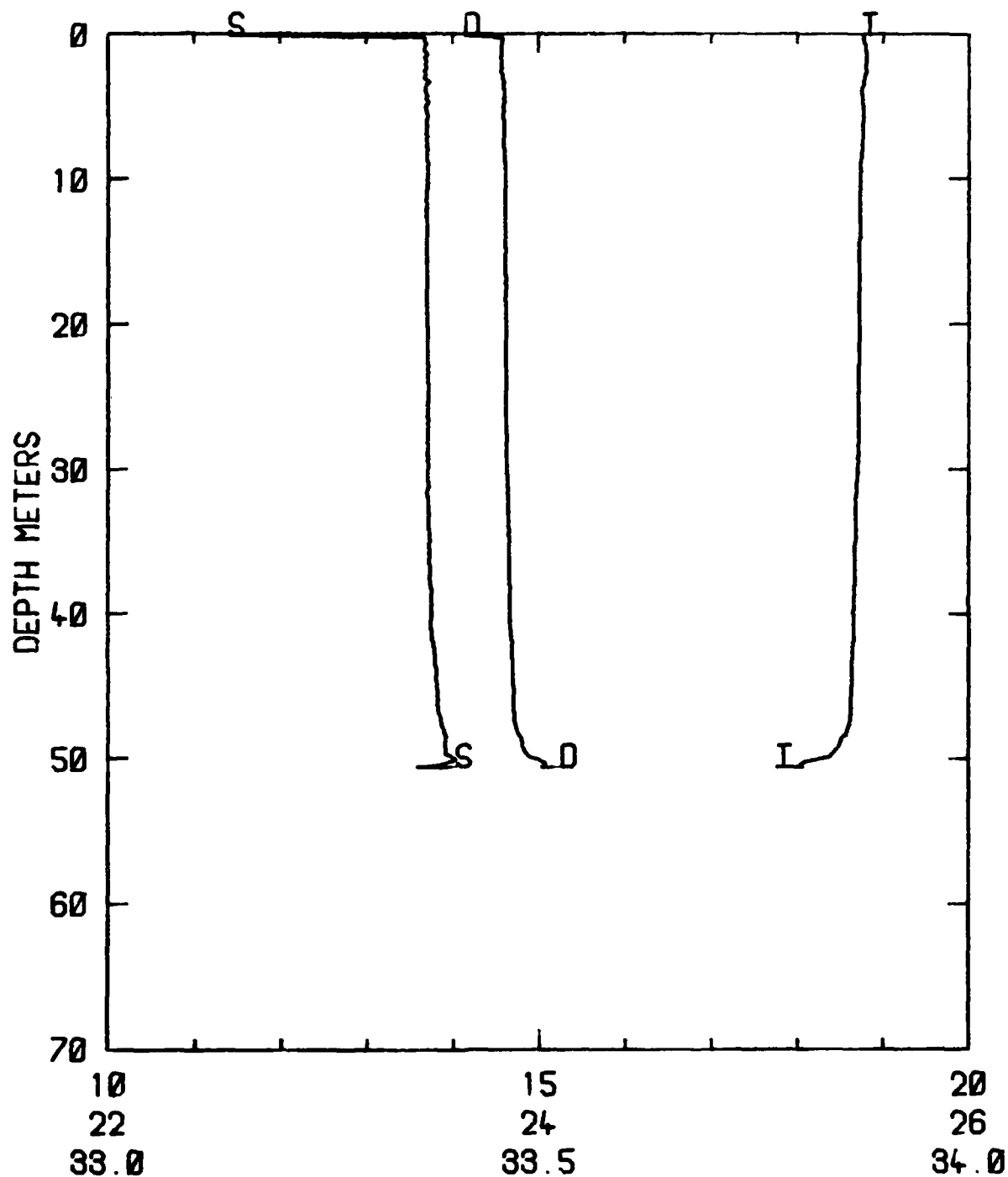
257

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSOR

TAPE 50
FILE 2



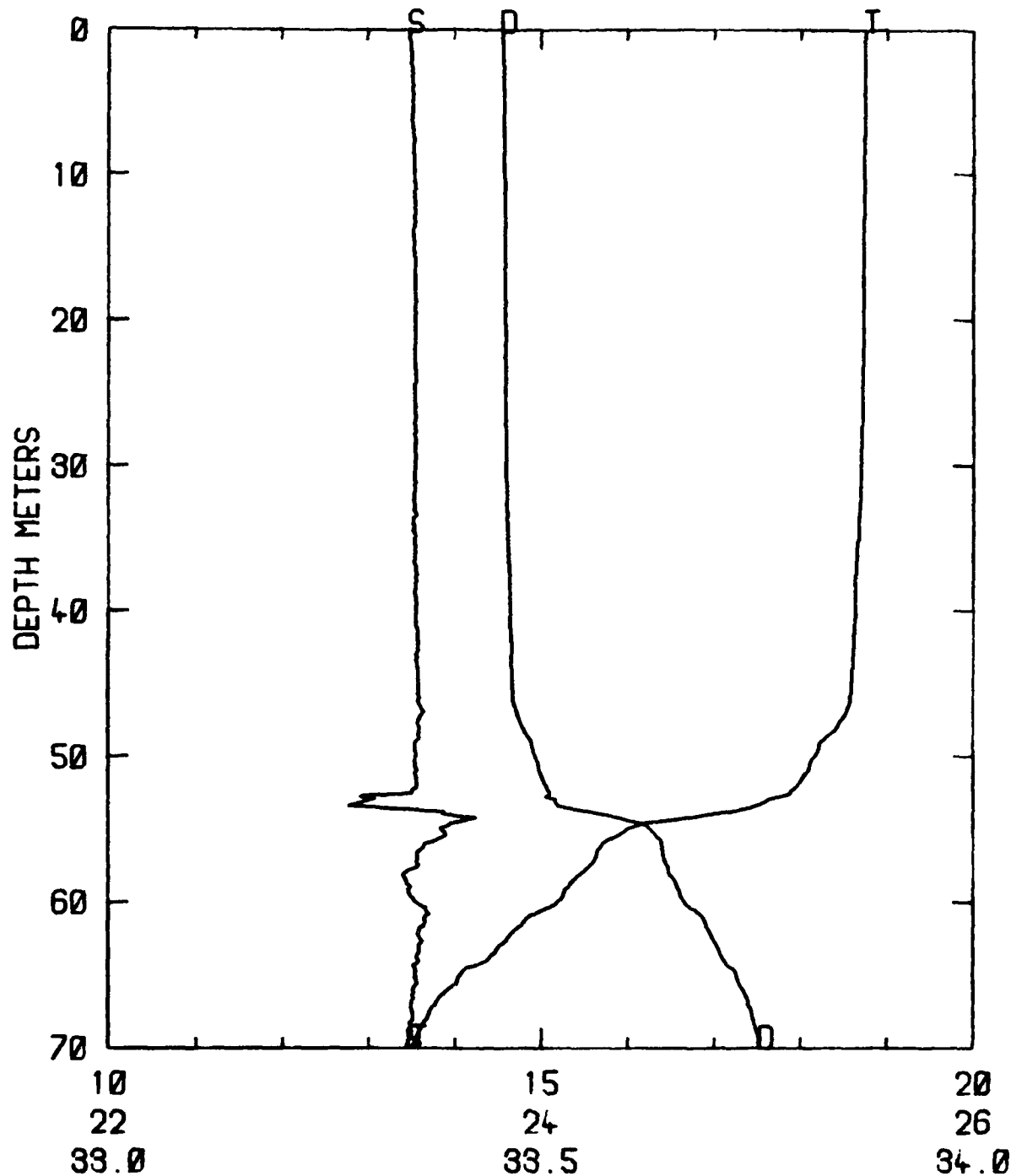
3-NOV-83 19:53

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 50
FILE 10

4-NOV-83 18:46

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSOR

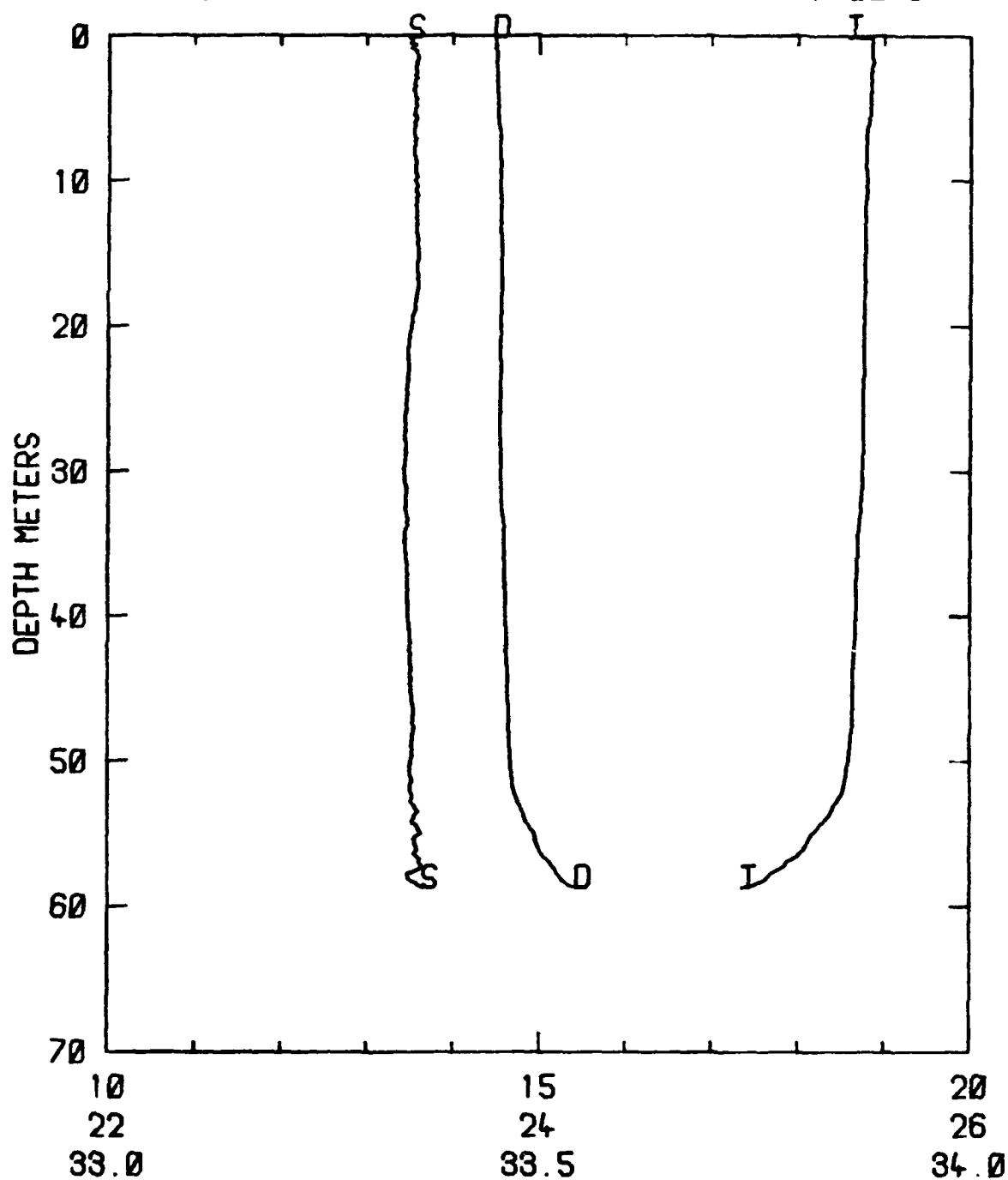
TAPE 51
FILE 1



4-NOV-83 20:45

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSOR

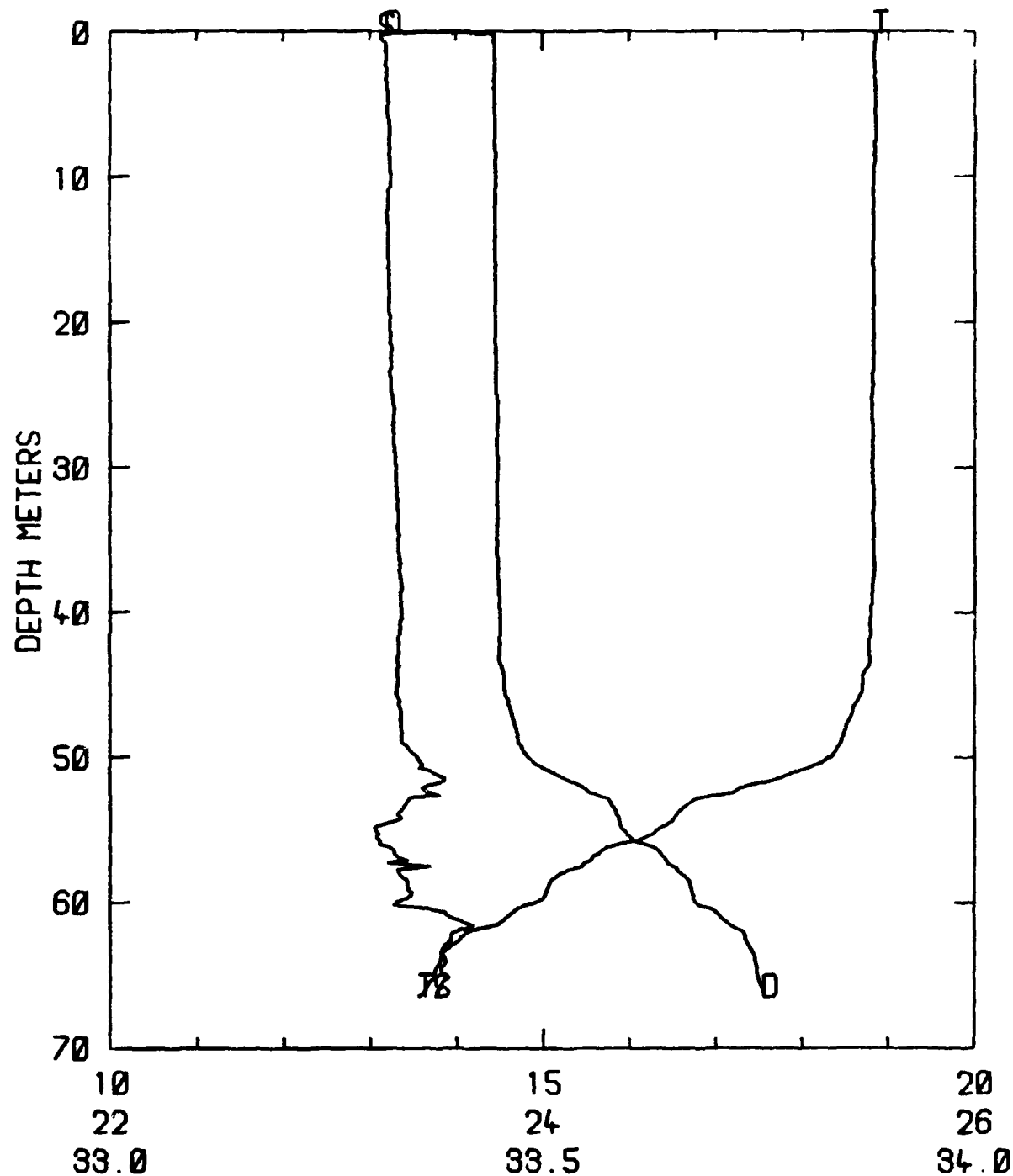
TAPE 51
FILE 9



241
10-NOV-83 21:45

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSOR

TAPE 64
FILE 3

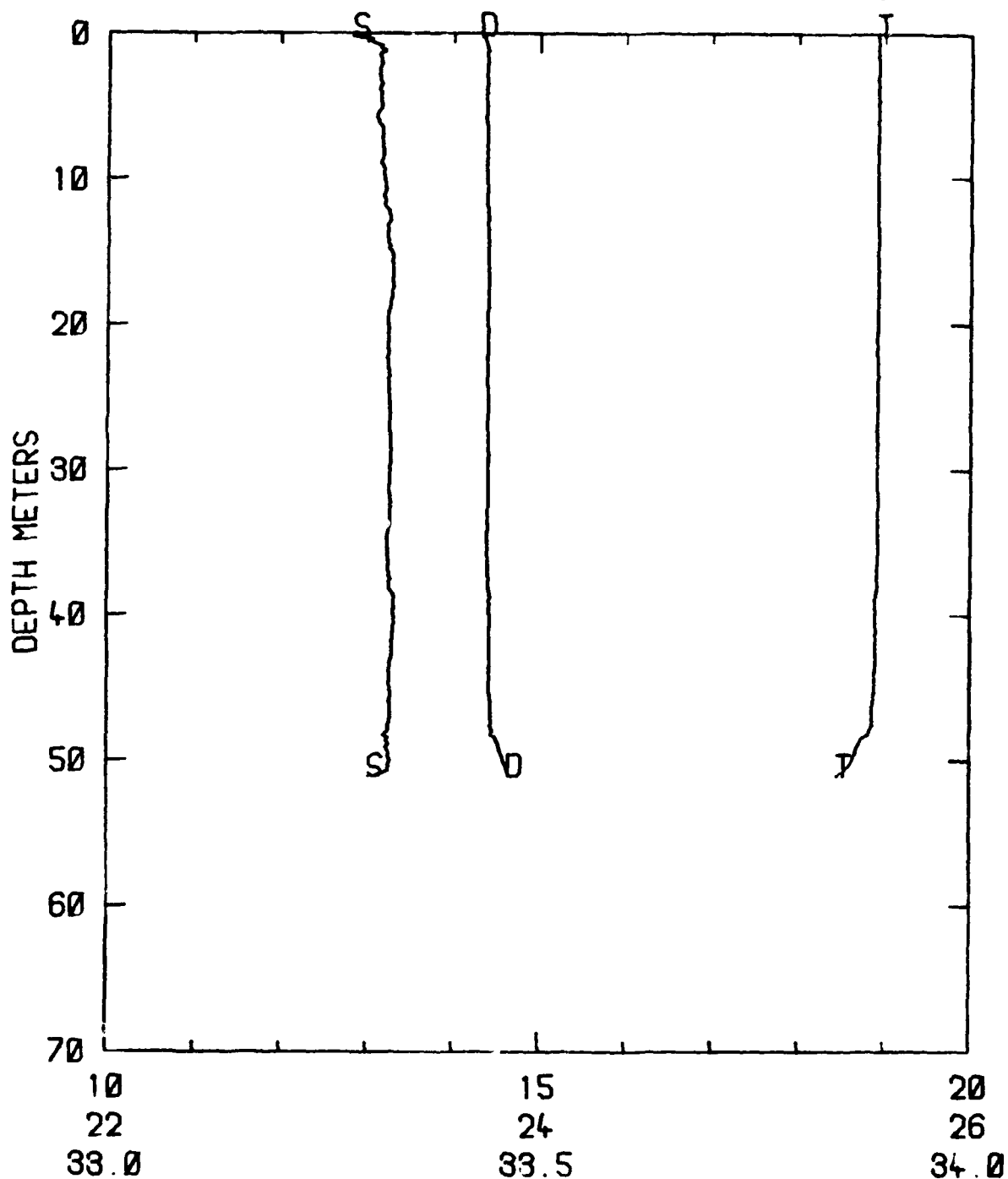


10-NOV-83 22:46

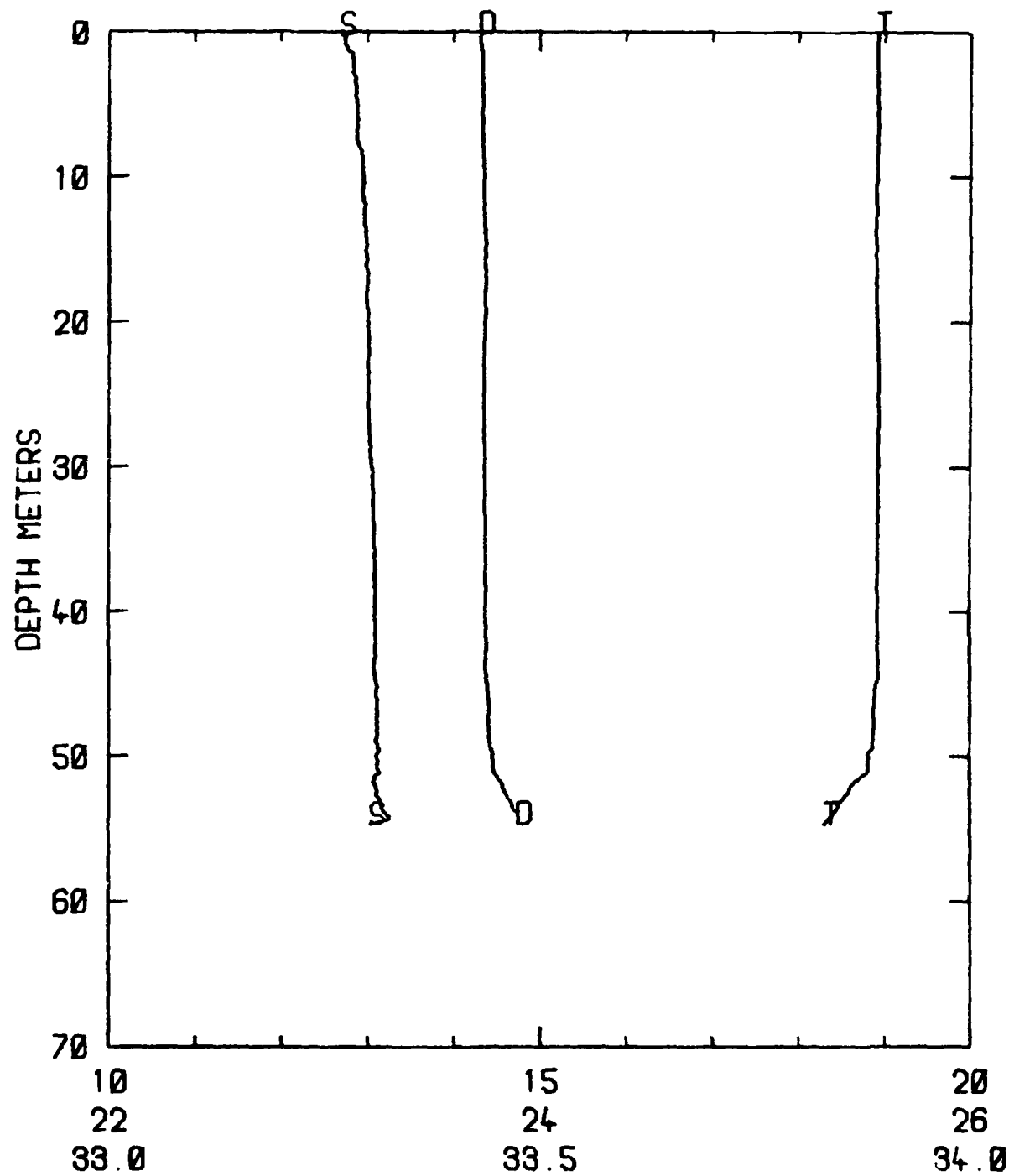
242

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSOR

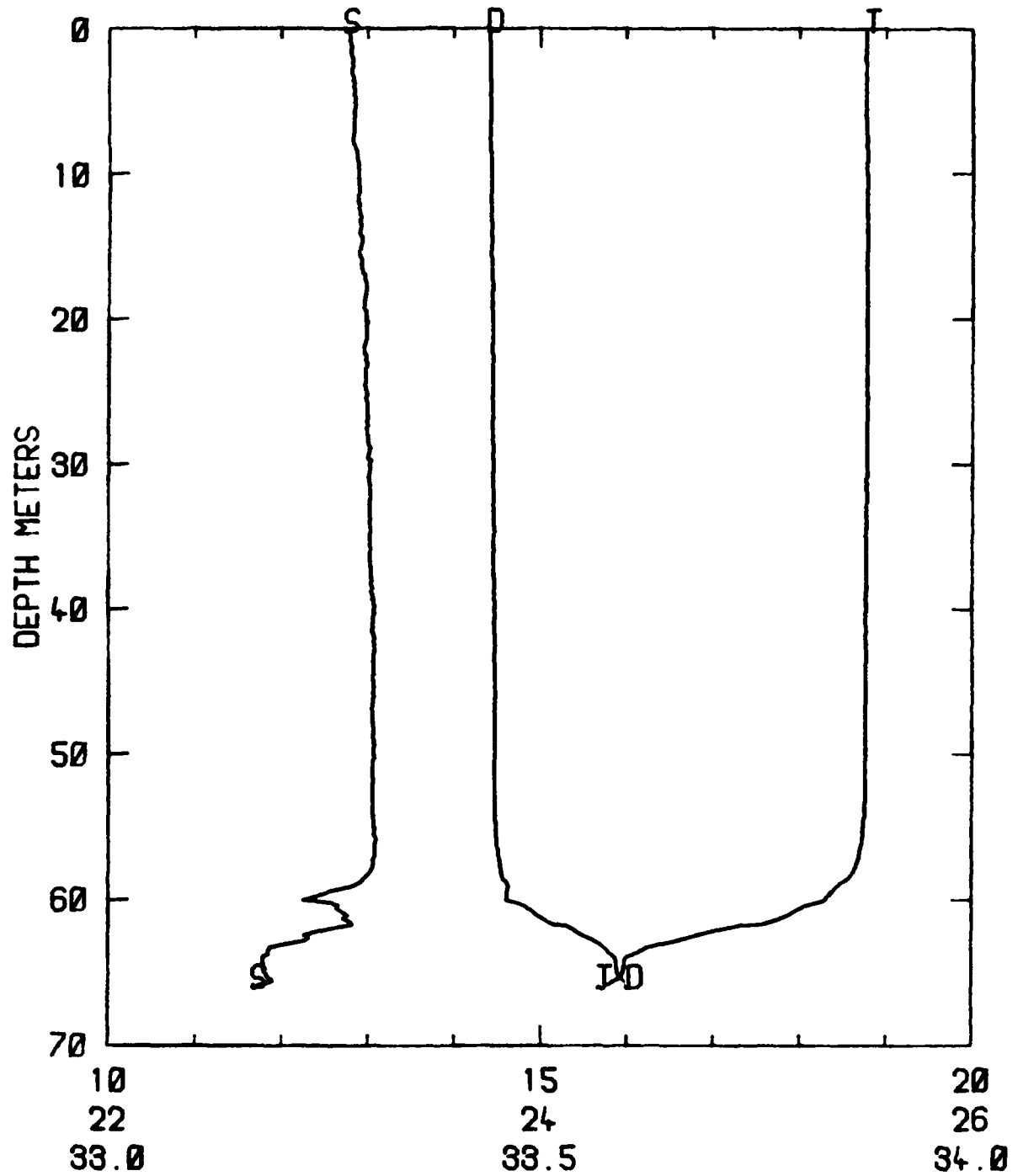
TAPE 64
FILE 9



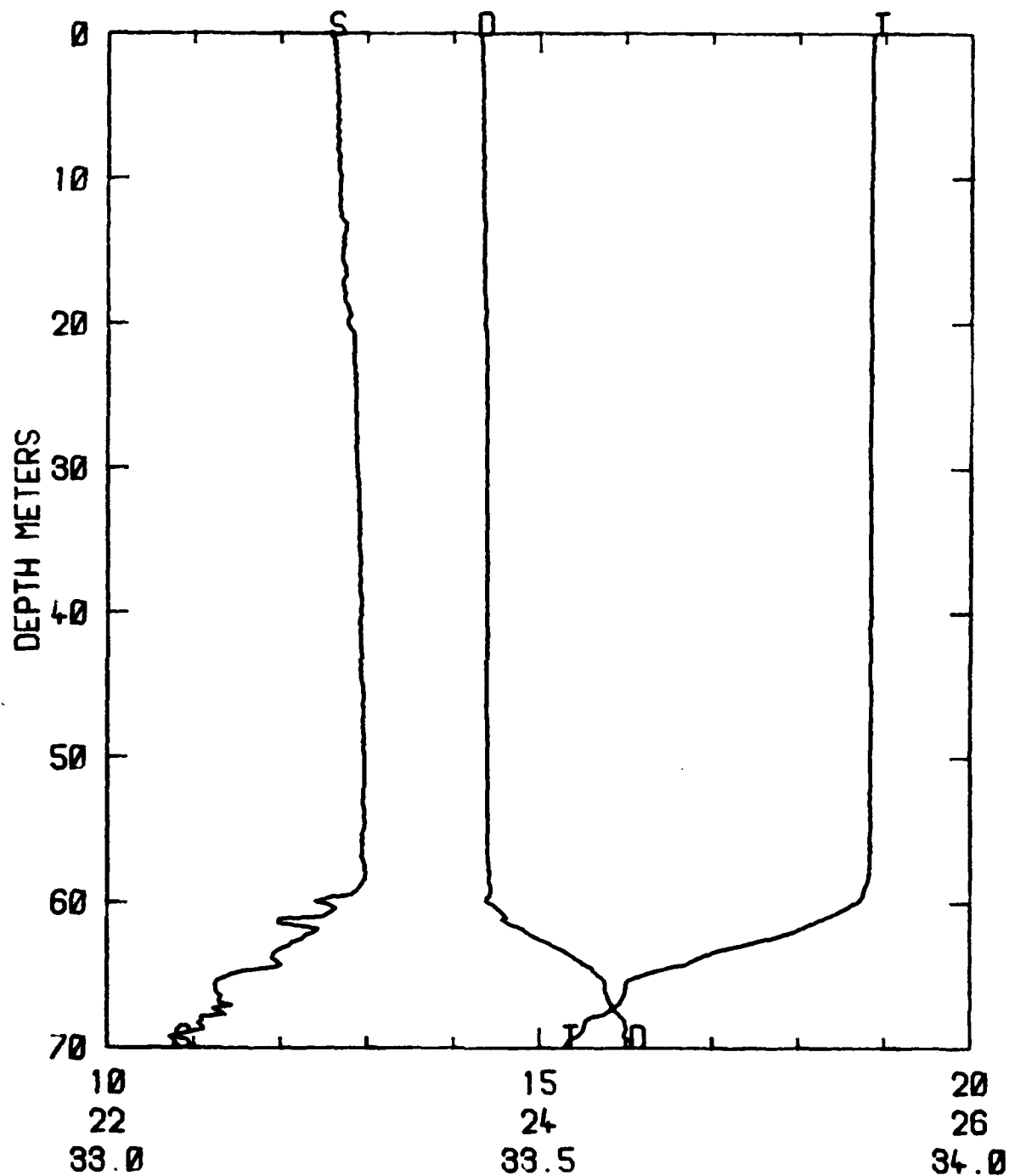
10-NOV-83 23:43

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 64
FILE 15

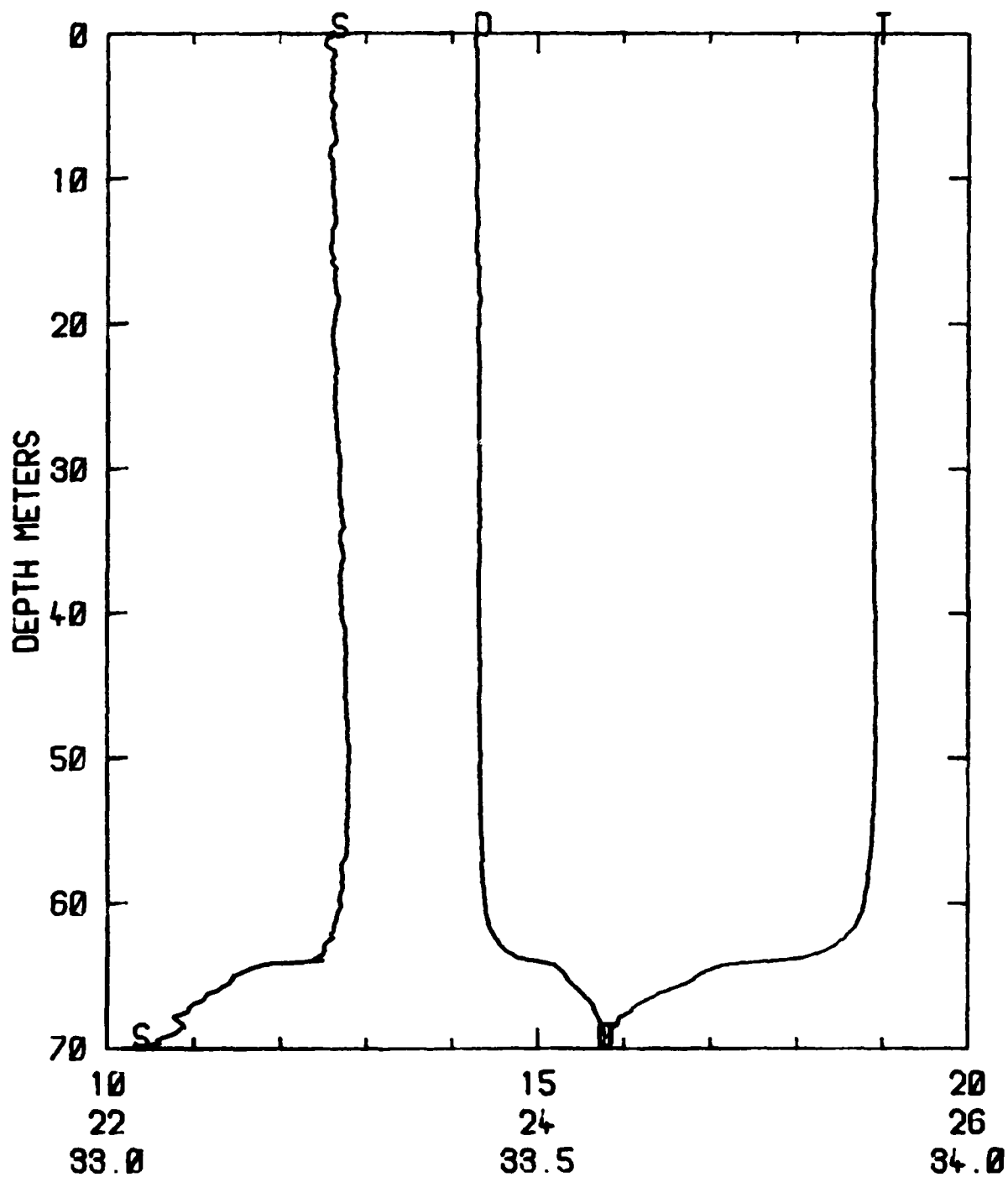
12-NOV-83 17:10

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 67
FILE 3

12-NOV-83 18:05

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 67
FILE 9

12-NOV-83 19:45

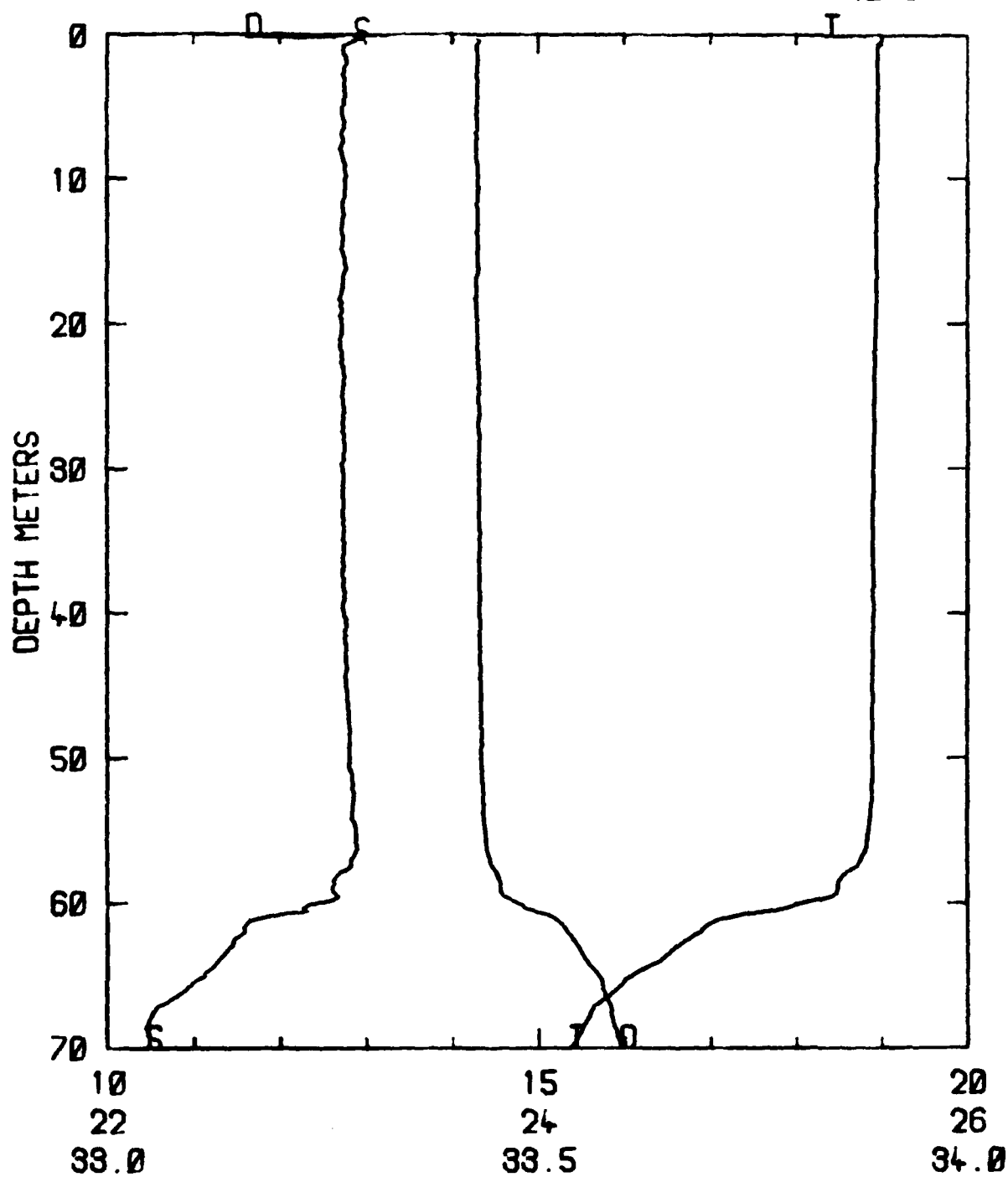
TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITYTAPE 67
FILE 16

12-NOV-83 20:31

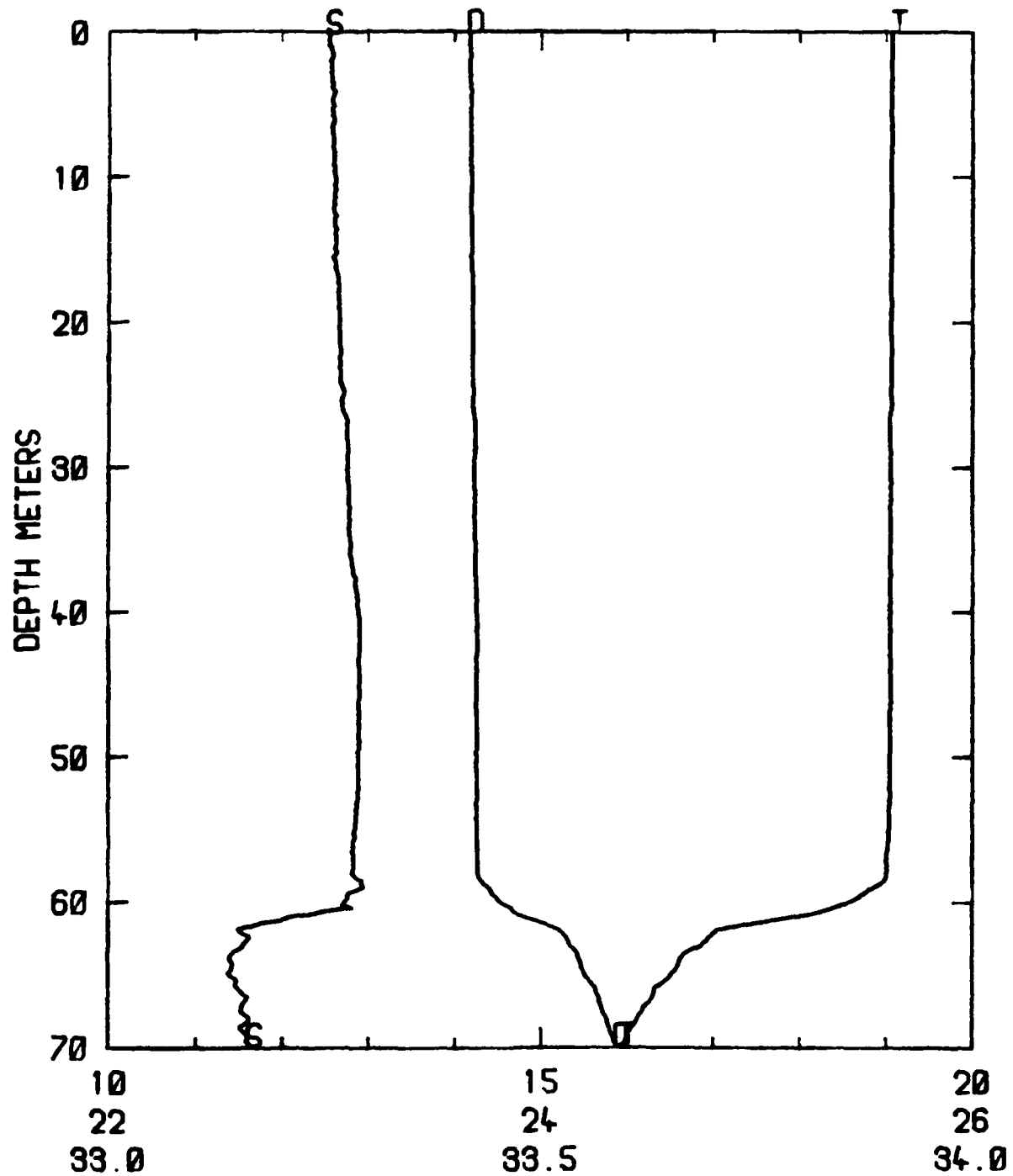
247

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITY

TAPE 68
FILE 3



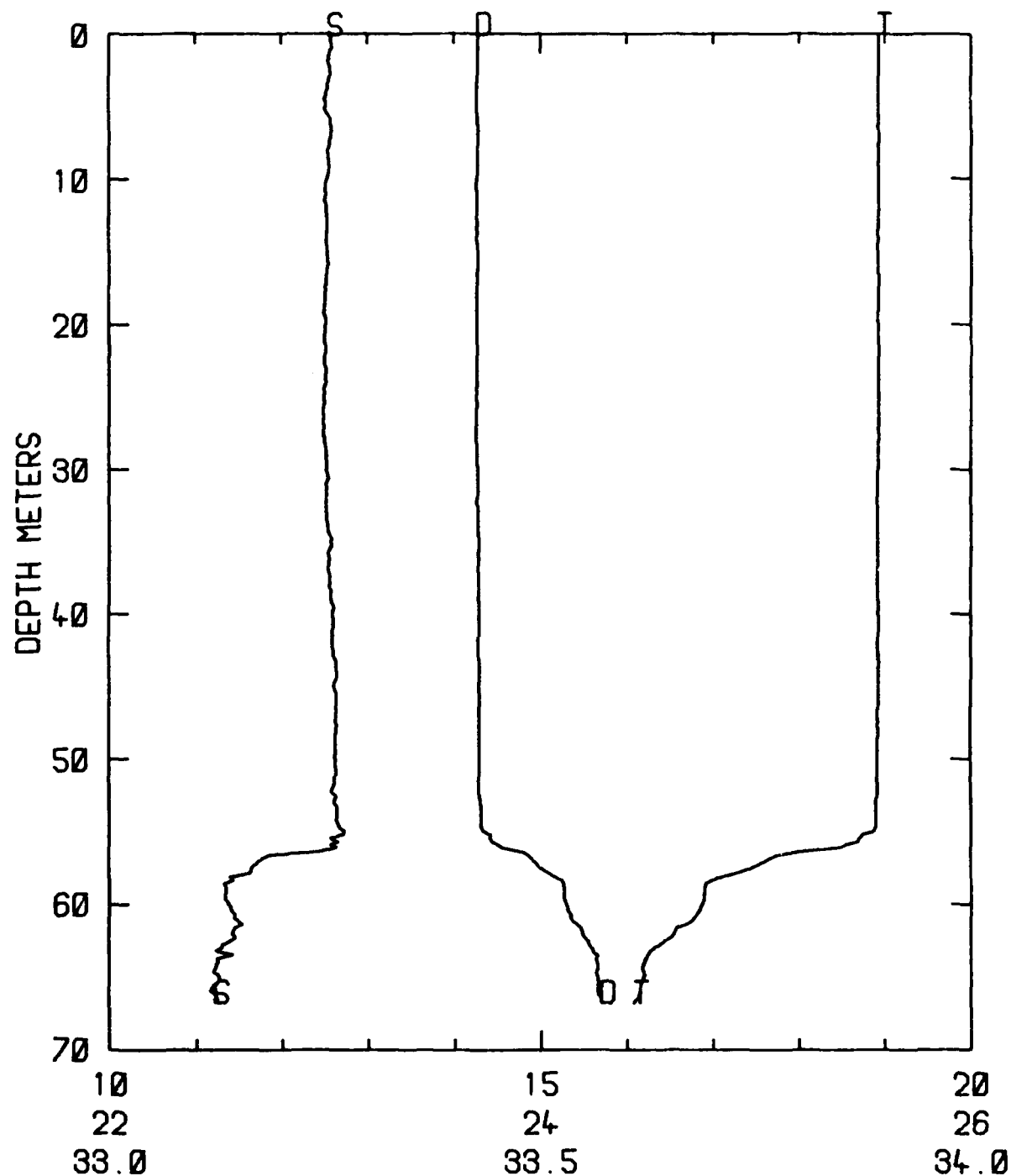
12-NOV-83 22:40

TEMP, SALINITY, SIGMA T
NEIL BROWN SENSORTAPE 68
FILE 11

13-NOV-83 00:13 249

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITY

TAPE 69
FILE 3

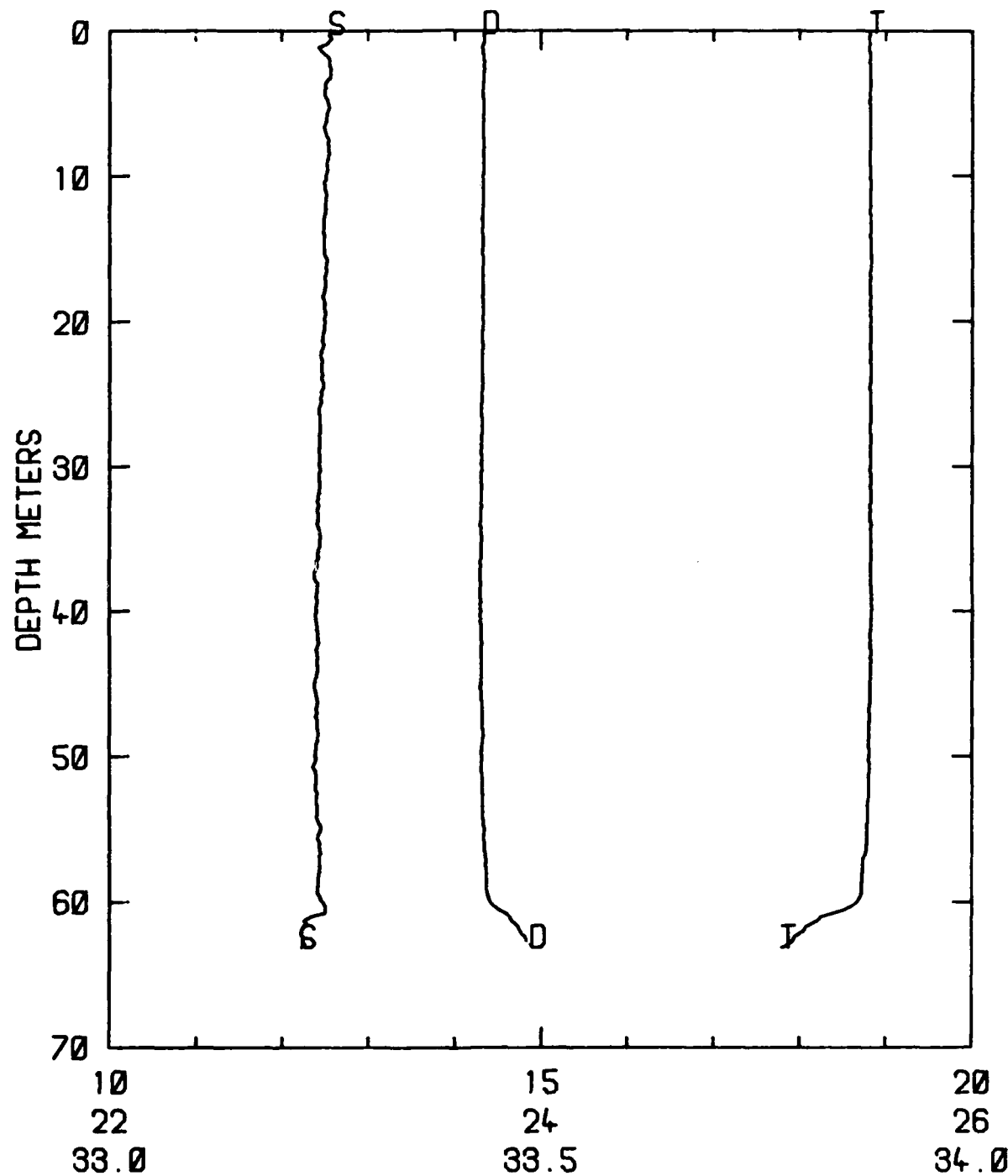


13-NOV-83 01:43

250

TEMP, SALINITY, SIGMA T
MICROCONDUCTIVITY

TAPE 69
FILE 10



END

FILMED

6-20-64

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